

MARITIME HERITAGE MINNESOTA



Ann Merriman
Christopher Olson

Minnesota River Survey 1 Report



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CONSERVATION, AND PRESERVATION OF MINNESOTA'S FINITE NAUTICAL AND MARITIME
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Cover: Sternwheeler *George Hays* with her barge at the Belle Plaine Levee and Swing Bridge (HE5.11Gp7, Minnesota Historical Society).



Grant Recipient

MINNESOTA HISTORICAL & CULTURAL GRANTS

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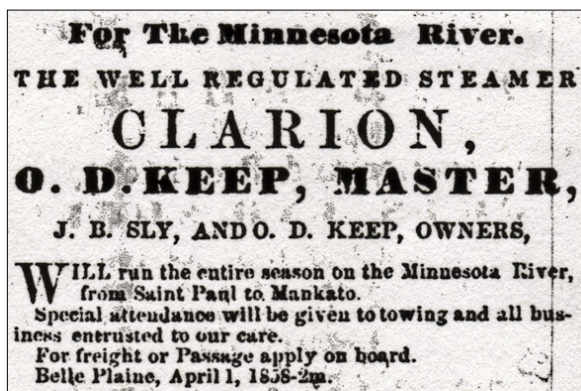
Introduction

The maritime history of the Minnesota River has been a subject of interest for Minnesotans since the mid-19th Century, when in 1882 the Edward D. Neil and Charles S. Bryant published their volume, *History of the Minnesota Valley*. This book amounted to more of a genealogical work than a study of riverine travel or use, but it does provide a brief overview of the communities along the river. By 1905, Thomas Hughes took on the task of investigating the “History of Steamboating on the Minnesota River” and his use of the City of St. Paul’s wharfmaster’s records provides a synopsis of several decades of steamer use on the Minnesota River. Part of Maritime Heritage Minnesota’s (MHM) mission is to study and interpret Minnesota’s maritime history and nautical/maritime archaeological sites through the survey of the State’s rivers and lakes. In the following pages are the results of MHM’s historical investigation into the Minnesota River’s maritime past as well as the findings of the Minnesota River Survey 1 (MRS-1), a side and down-imaging sonar survey of a portion of the river that took place in mid-November 2011.

Steamboats on the Minnesota River

It was widely believed that the Minnesota River was not navigable, the same belief that was held – and is still held by many – about the Mississippi River above Minneapolis. The Headwaters Mississippi River witnessed over 50 years of commerce and travel by a dozen steamboats that were purpose-built to meet the limitations of the river in Aitkin and Itasca Counties. Unlike the Headwaters Mississippi River whose bottom and banks is comprised of thick clay and mud, the Minnesota River bottom and banks consist substantially of silty sand. This sandy composition has allowed repeated flooding to significantly alter the river’s route over the last 100 years – and even appreciably during the last ten.

Navigation on the Minnesota River began in 1823 when the 118-foot long and 22 feet wide steamer *Virginia* moored at Fort Snelling via the Minnesota River and it wasn’t until 1842 that a small steamboat traveled upriver as far as Shakopee. Beginning in the 1850s steamers and keelboats traveled up the Minnesota River from St. Paul carrying cargo and passengers as far as Mankato; the steamers often towed one or two barges behind them or pushed them in front, when water levels allowed. One such steamboat was the 73-ton *Clarion* built in Monongahela, PA in 1851, a sternwheeler that entered the Minnesota River trade in 1853 (Hughes 1905, 139; Way 1994, 100).



Sternwheeler *Clarion* advertisement (*Belle Plaine Enquirer* 1858a).

Human-propelled narrow keel boats – open un-decked barges – between 50-60 feet long, 10-12 feet in the beam, and a 4-5 foot depth of hold were commonly used for cargo-carrying by 1854, although they were used as early as 1823 near the mouth of


the river. They had a crew of 10-12 punters who used punt poles to move the boat along the river while walking on planks set at the boat's gunwales. The boat had a low profile cabin in the stern that housed the cook and his supplies, tarps were carried to protect cargo from the rain, and her captain acted as the steersman (Hughes 1905, 141; Prescott 1894, 479).

Navigation was often possible past Carver, but just upriver Carver Rapids were a hazard during low water conditions. Depending on the water levels, watercraft either portaged around the rapids, lightened their loads and crossed the rocks, navigated safely over the hazard in high water, or turned around once they encountered the rocks. When large boats were used on the river they often met with failure, as the 170-foot long, 225-ton sidewheeler *Minnesota Belle* experienced. She was constructed by Captain Samuel Humbertson in 1854 at Belle Vernon, PA, and he headed west to St. Paul. He took on immigrants set for South Bend, just west of Mankato, a settlement that Humbertson wished to develop into a major Minnesota River Valley town. When *Minnesota Belle* couldn't navigate Carver Rapids, Captain Humbertson turned his steamer around, abandoned his plan, and instead operated on the Mississippi. In 1855 the Minnesota River levels were adequate for small steamers, but by mid-summer steamer traffic had ceased due to low water. However, autumn rains raised the Minnesota River significantly and the sternwheeler *Time and Tide*, among others, began their service late in the season, continuing into mid-November. The fluctuating nature of the river was seen again in 1856 when high water levels throughout the commercial season significantly increased steamboat traffic upon the Minnesota River (Hughes 1905, 133-144; Way 1994, 100, 323).



A portion of a survey map showing the two sections of the Carver Rapids (Original Land Survey Maps of Minnesota Collection 1855).

In 1857 Captain George Houghton began operating steamboats on the Minnesota River, beginning with the small 45-ton sidewheeler *Antelope* constructed in Kasota, MN in 1856. Houghton and the *Antelope* focused on regular service between St. Paul and Chaska until 1863, nearly assuring a brisk business even during low water conditions. Captain Houghton also owned and operated the 125 feet-long, 22 feet wide, 94-ton sidewheel steamer *Mollie Mohler*. News of this steamboat's construction reached Shakopee in mid-June 1864, when it was reported "we may expect to see her at our levee in a few days. She is being finished up in fine style and when done, it is said she will surpass, for beauty of appearance, any of the

STEAMER	
ANTELOPE	
GEORGE HOUGHTON, Master.	
	<p>THE Steamer ANTELOPE, having been thoroughly refitted and put in complete order, has resumed her regular daily trips from Louisville, leaves at 5 1-2 A. M., Carver at 6, Chaska at 6 1-2, Shakopee at 7 o'clock every morning (Sunday excepted); arrives at St. Paul in time to connect with the La Crosse, Prairie du Chien, Galena and St. Louis Packets. Returning, leaves St. Paul every day (except Sundays) by 2 o'clock P. M.; arrives at Shakopee from 6 to 7 P. M.; Carver at 8 P. M.</p> <p>Passengers by the Antelope, doing business in St. Paul, will be able to transact their business in time to return the same day.</p> <p>The patronage of the traveling public is solicited. The proprietors feel assured that they can, as heretofore, give the most entire satisfaction.</p> <p>May 10th, 1859.</p>

Advertisement for *Antelope's* packet service (Carver County Democrat 1859).

craft, that on these waters do run.” *Mollie Mohler* was a steamer purpose-built in Carver for the Minnesota River that could accommodate 56 cabin passengers (Hughes 1905, 144, 153, 158-160, 162; Lytle and Holdcamper 1975, 11; *Shakopee Argus* 1864; Way 1994, 25). Captain George Houghton is significant to Minnesota’s maritime history due to the fact that when steamer traffic subsided on the Minnesota River because of the extension of railroad lines into the Minnesota River Valley, Houghton shifted his focus to the Headwaters Mississippi River in Aitkin. Captain Houghton can be characterized as the ‘father of Headwaters Mississippi River steamboating’ since his sternwheeler *Pokegama* was the first to establish regular packet service between Aitkin and Grand Rapids from 1870 to 1877. Houghton also built and operated the sternwheel steamer *City of Aitkin* beginning in 1878 – later re-built as the *George H. Houghton* – and the sternwheeler *Fawn* in 1882. Both of these steamers wrecked in the Headwaters Mississippi River; MHM may have located the remains of both vessels in 2010 but their identification has not been confirmed yet (Merriman and Olson 2010, 16).

Also in 1857, the sternwheel steamers *Jeannette Roberts* and *Frank Steele* began their Minnesota River service, with the *Albany* – “a light draught and fast little ‘fixing’...[that] is well adapted to the Minnesota river, in low water” joining them in 1860. *Jeannette Roberts* was advertised as a “light draught” steamer and this construction served her well since it was reported in a Belle Plaine newspaper that she operated below the Carver Rapids even during low water in late 1859. Even early in the navigation season, when water was expected to be high due to snow melt, sometimes the river was at such low levels that *Frank Steele* “touched on the rapids”. A solution to the rapids problem was found by *Jeannette Roberts* and *Time and Tide* of the Roberts Line. *Jeannette Roberts* remained below the rapids and off-loaded her cargo for *Time and Tide* to pick up on the other side, completing the run to Mankato. The *Æolian*, advertised in Belle Plaine as “the exceedingly light draught and fast running boat...fitted up expressly for the Minnesota River trade...of so light a draught that she is enabled to pass and re-pass over the rapids at almost any stage of water”, emulated the other steamers. She teamed up with the “light draught and fast running steamer *Favorite*” to complete the St. Paul to Mankato river runs, when *Æolian* picked up her passengers and cargo below the Carver Rapids after their off-loading and portage (*Belle Plaine Enquirer* 1860a-e; Hughes 1905, 144). With these limitations in mind, consistent and reliable transportation on the Minnesota River above the rapids during the latter half of the 19th Century was dependent on normal to high water conditions, the clearance of obstructions such as fallen trees, the freezing and melting

	TRI-WEEKLY EXPRESS-PACKET,
	THE ELEGANT PASSENGER STEAMER ALBANY.
	JOHN WEBBER, Master
	Will make regular semi-weekly trips from St. Paul to Mankato, during the season, touching at all intermediate points tri-weekly, in advance of the U. S. Mails, connecting with had lines running east north and south. For freight or passage apply on board. [tf] June 8th '61
	THE LIGHT DRAUGHT PASSENGER PACKET,
	Jeanette Roberts.
	NELSON ROBERTS, Master.
	Will make regular trips between St. Paul and Mankato, the present season; touching at all intermediate points. For freight or passage apply on board. [tf] June 8th 1861.

Steamboat advertisements (*Belle Plaine Enquirer* 1861).

of river ice, and the use of steamboats and barges whose shallow-draft designs were appropriate for the river's nature.



Left to right, sidewheeler *Grey Eagle*, along with the Minnesota River sidewheeler *Frank Steele*, and sternwheelers *Jeannette Roberts*, and *Time & Tide*, are docked at the Lower Levee at Jackson Street in St. Paul in 1859 (MR2.9SP4.3p43, Minnesota Historical Society).

During the 1860s, the levee at Chaska – below the Carver Rapids – was bustling with reports of barge loads of wood products awaiting their departure. This group of barges was labeled as the “shipping fleet of Chaska” by the local newspaper in early April 1864. In May 1864 the mention of a ‘steam flatboat’, the *Polly Hopkins*, is noteworthy since this is the only mention of such a vessel found on the Minnesota River. A flatboat, like a barge, would be uniquely suited to the often shallow water of the Minnesota River. Also, having steam power would allow the *Polly Hopkins* to navigate the Carver Rapids more effectively. Navigation conditions were commonly detailed in the news with men such as Captain Houghton reporting that there is “only 13 inches on Mendota bar. Wood boats and other craft are, by getting fast on the bar, continually disturbing the channel” (*Valley Herald* 1864a-b, d).

By 1866 the St. Paul and Sioux City Railroad reached Belle Plaine and resulting in a decrease in steamboat traffic below the town. In response to the railroad expansion, in 1867 *Mollie Mohler* and her captain, H. W. Holmes, provided a daily steamboat service from Mankato and Belle Plaine in order to make regular connections with the train there and to pick up passengers for upriver travel to Mankato and beyond. Other steamers provided packet service between Mankato and St. Peter as well. In 1871 the Northwestern Railway arrived in New Ulm and nearly all commercial (not-for-pleasure travel) steamboat navigation of the Minnesota River ceased. In early August 1871 it was reported in Chaska that the *Mollie Mohler* was “permanently withdrawn from the Minnesota river trade [and] the little *Otter*...is now the only reliable river packet”, and only six steamer trips were made up the river between 1872 and 1876. No commercial steamboats were seen on the Minnesota River until the *Alvira* made one trip upriver in 1886 (Hughes 1905, 154-155, 157; *Valley Herald* 1871b).

While cargo carrying and commercial steamer traffic was rare on the river beyond 1871, pleasure excursions began as early as 1878 when the sidewheeler *Aunt Betsey* took picnickers from Carver to Minnehaha Falls on day trips three times that season, picking up excursionists at Chaska and Shakopee on the way (Barac 1976, 149). In 1895 excursions on the new St. Paul-built sternwheeler *Lorna Doone* were popular, with one day-trip described as “pleasant and the trip up the river was delightful. The only incident that happened to mar the occasion was the delay occasioned by grounding on the sand bar near Forth Snelling. The party numbered about five hundred; they were met below Shakopee by the band of this city and a delegation of our citizens.” *Lorna Doone* was uniquely qualified for such excursions due to her size – 64 feet long, 12.3 feet in the beam, with a 3.5 depth of hold – and yet she still grounded on the Mendota bar. In 1897 the Stillwater-built 170-

foot long sternwheeler *Henrietta* with her 40 staterooms ran one excursion from the Mississippi River to Henderson, St. Peter, and Mankato during high water and she had another excursion in 1899. Also in 1897, the sternwheeler *Daisy* (122 feet long, 22 feet in the beam, with a 3.8 foot depth of hold; built in Stillwater in 1887) was often seen on excursions from St. Paul to Chaska. The Winona-built sternwheeler *Gate City*, constructed in 1900 (73.8 feet long, 13.8 feet in the beam, with a 3.5 foot depth of hold), was being dubbed as a daily “Minnesota River Packet” in 1901, offering trips between St. Paul and Chaska for passengers and as a pleasure excursion (Hughes 1905, 157; Way 1994, 118, 177, 210, 293; *Weekly Valley Herald* 1895a; 1901).

Another excursion steamer that took passengers up the Minnesota was the sternwheeler *Cyclone*; she often increased her carrying capacity by towing a barge behind her. The last passenger steamboat to regularly ply the Minnesota River as an excursion vessel was the sidewheeler *Hiawatha*, built in St. Paul in 1904. She was 95 feet long with an 18-foot beam and a 4.2-foot depth of hold. She was most often witnessed towing the barge *Bessie Dollar* behind her for increased passenger capacity. She was a popular and long-lasting vessel since she was still in operation in 1918 (Way 1994, 214).



The sidewheeler *Aunt Betsey* is shown here taking on passengers from a barge or flatboat that is being used as a dock in Carver (Courtesy of the City of Carver).

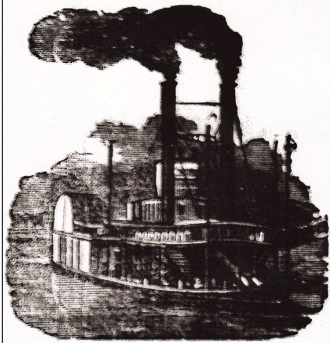


Henrietta during the 1897 excursion (HE5.11Hh1, John R. Snow, Minnesota Historical Society).

Don't Fail

To go on the only
River Excursion
Of the Season.
To-Morrow June 9.

On Steamboat Henrietta to
Minnehaha Falls and
St. Paul and Return.



Good Music, Dancing on
Barge, Refreshments on
Boat at reasonable rates.

Leaves Chaska at 7:30 A. M. Re-
turning at 10:30 P. M. Four hours
at St. Paul.

Only comfortable capacity of boat
will be sold. Get tickets in advance.
Round trip fare - 75c.
Children under 12 years - 50c
Tickets for sale at Post Office and
Leonard Ess.

Left: A newspaper advertisement for *Henrietta's* excursion of 1899 (*Chaska Herald*, 8 June 1899).



Daisy (HE5.22Dr5, Minnesota Historical Society).



Cyclone on the Minnesota River next to a small launch (HE5.11cr28, Minnesota Historical Society).

An advertising postcard for the *Hiawatha*
(HE5.11Hr23, Minnesota Historical
Society).





Barge *Bessie Dollar* and *Hiawatha* at a river dock (HE5.14r20, Orris W. Mullen, Minnesota Historical Society).

In 1942 Cargill established Port Cargill in Savage to construct six ocean-going tankers for the US Navy. In addition, the company also produced towboats. At the close of the war in 1945 Port Cargill began building grain barges for use on the Minnesota and Mississippi Rivers and commercial barge traffic dominated Minnesota River navigation. At present, Port Cargill regularly ships bulk commodities in barges down the Minnesota River. Even further upriver, beginning in 1963, the Peavey Company constructed a grain elevator and barge pier in Shakopee, utilizing the Minnesota River for transport (Peavey Company Records 1963; *Cargill Timeline* 2011, 7; *Weekly Valley Herald* 1944).

USS *Agawam* (AOG-6), the first Navy vessel constructed and launched from Port Cargill, traveling under the Mendota Bridge in what is now Fort Snelling State Park in October 1943 (HE5.25p23, Minnesota Historical Society).





A towboat from Port Cargill pushing two barges under the 35W bridge on the Minnesota River. It was good timing that allowed MHM to take this photograph at the time of launching the survey boat on the second day of the survey.

Possible Nautical Archaeological Sites in the Minnesota River

***lone*.** The 56-ton *lone* was constructed in Fox River, WI in 1853. Although her home port was St. Louis, MO, she worked on the Minnesota River in 1854. She hit a snag and sunk in the river on 6 June 1854 (Lytle and Holdcamper 1975, 102, 269) but her exact location was not documented.

Sencerbox Steamboat. The name of Captain Sencerbox's steamboat is unknown, but apparently he constructed the boat in St. Paul beginning in July 1855 and commenced Minnesota River commerce immediately upon her completion. He operated a cargo service from Mendota to Mankato and in November 1855 the boat wrecked one mile downriver from Carver. It is reported that during low water the wreck was visible over the years but a flood in 1903 entirely covered her with sand. In 1927 a wreck was spotted among the spring ice floe not far from where she sank (*Weekly Valley Herald* 1927).

***Freighter*.** The 93-ton square-bowed flat-bottomed sternwheeler *Freighter* was built in Zanesville, OH in 1855. In late June 1859 Captain John B. Davis attempted to take the steamer the entire distance of the Minnesota River, into Big Stone Lake, and out the other side into the Red River of the North during extended high water. Captain Davis made it upriver within 10 miles of Big Stone Lake before *Freighter* stranded and she was abandoned. She was stripped of useful fittings and apparently her cabin and pilot house were taken to Odessa and one timber is at the Lac Qui Parle Historical Society. Her hull timbers were visible in the river for 30 years after the accident (Hall et al 1997, 106; Hughes 1905, 146; Lytle and Holdcamper 1975, 262; Way 1994, 174).

***New Ulm Belle*.** The 50-ton sternwheeler *New Ulm Belle* was constructed in St. Paul by Stagg and Handy in 1862 with Captain Scott at the helm. She hit a snag in the Minnesota River in August of 1862 and sank (Hughes 1905, 149; Lytle and Holdcamper 1975, 156, 285; Way 1994, 346) but her exact location is unknown.

***Julia*.** The 158-ton sternwheeler *Julia* was 141 feet long, 28 feet in the beam, had a carrying capacity of 300 tons, and was constructed in Manchester, PA in 1863. Initially she operated in Pennsylvania and was able to run successfully during low water conditions; she drew 17 inches of water fully loaded, making her appropriate for the Minnesota River. She began working on the Minnesota River in 1865 for the Northwestern Line under Captain



Julia (HE5.11Jr30, Minnesota Historical Society).

John H. Rainey. Her working life on the river only lasted two years. In 1867 "the principal river casualty...was the sinking of the *Julia* two miles below Mankato on the morning of the 10th of May. She struck a snag as she was coming up the river, under a

full head of steam, well loaded with passengers and freight, and sank in twelve feet of water. None of the passengers were injured, and nearly all the freight was recovered, but the boat itself was a wreck. Her machinery and upper deck were eventually removed, but the hull lies in the sands of the Minnesota to this day” (Hughes 1905, 153, 155, 159; Lytle and Holdcamper 1975, 117, 273; Way 1994, 260).

Mankato. The Davidson Company of LaCrosse, WI constructed the 127-ton, 150-foot long sternwheeler *Mankato* specifically for the Minnesota River trade in 1864. The town of Mankato was proud of their namesake and presented the steamer with a silk flag in 1865. On 18 April 1871 *Mankato* was heading upstream to St. Peter when she snagged and sank, with no harm coming to the people on board. Reportedly she lay in the river for a year, was raised, and then taken downriver (Hughes 1905, 152; Lytle and Holdcamper 1975, 136, 279; Way 1994, 306).

Otter. The small 49-ton steamer *Otter* was constructed in Henderson in 1865. She operated from St. Paul to Mankato until 1869 when some New Ulm businessmen purchased her for \$3,000 for commerce between New Ulm and Mankato carrying – on average – 3,000 bushels of wheat. Sometimes *Otter* transported cargo between West Newton, upriver from New Ulm, to South Bend on the west end of Mankato, towing upwards to 2 loaded wheat barges with her. *Otter* was abandoned near West Newton or New Ulm in 1880 or 1882 (Hughes 1905, 153, 156-157; Lytle and Holdcamper 1975, 166).

E. Douglas. The sternwheeler *E. Douglas* was constructed in Wabasha in 1896. She measured 112.3 feet long, was 34.2 feet in the beam, and weighed 107 tons. She was owned by the Mississippi River Logging and Boom Company and worked in the logging industry around West Newton. She sank in an ice jam in March 1901 and efforts to raise her failed (Hall et al 1997, 106).

Survey Methodology

Maritime Heritage Minnesota's Minnesota River Survey 1 (MRS-1) is the second systematic side and down imaging sonar survey of a body of water in Minnesota; the first systematic survey was the Mississippi River Aitkin County Survey (MRACS) in 2010, also conducted by MHM. The plan for this project was to survey the Minnesota River channel from St. Paul to Henderson, a total of 74 miles, in order to locate submerged cultural resources in six counties: Hennepin, Dakota, Scott, Carver, Sibley, and Le Sueur. The sonar survey took place between November 10 and 14, 2011. Additional terrestrial walking surveys took place in Fort Snelling State Park, Bloomington, Shakopee, Chaska, Carver, Rapids Lake Wildlife Refuge, Belle Plaine, Blakely, and Henderson.

MHM's sonar equipment and boat, used successfully during the MRACS project, was also used for the MRS-1 project. The sonar unit's side-mounted transducer proved to be appropriate for the low water conditions encountered. MHM used a Department of Natural Resources 2007 Water Trail Guide map and information provided online to determine boat launch sites on the river and projected daily goals. Initially, MHM planned to conduct the 74-mile survey in seven workdays of various lengths with different mileage goals daily, with deadheading distance taken into consideration. MHM spent five days in the field conducting the survey, recording 16 hours of sonar data, 19 anomalies, and physical evidence of 13 maritime infrastructure sites (Sites 1-13). Throughout the survey, with the exception of the river's dredged distance up to Savage, MHM encountered innumerable snags and sand bars, products of the recent floods. Further, due to low water conditions, Carver Rapids were an issue, just as they had been throughout the 19th and early 20th Centuries. Upon the completion of the field survey portion of the project, MHM located historical, written, and photographic evidence of an



MHM's survey boat, an in-kind donation, at the Minnesota River boat launch at the terminus of Lyndale Avenue in Bloomington near the I-35W bridge.



MHM's Minnesota Historical and Cultural Grant Recipient sign that is carried on the boat for every survey.

additional 17 maritime sites (Sites A-Q) along the river where no physical evidence of their existence could be found.

Maritime Infrastructure on the Minnesota River

The most obvious elements seen during this survey were the remnants of bridges and railroad trestles. These constructions – both modern and historic – were encountered throughout the survey. Their historic significance is undeniable and they are comprised of archaeological remains. The different sites (Sites 1-13) – and those sites that are no longer extant but that are significant to the maritime history of the Minnesota River Valley (Sites A-Q) – will be summarized below, starting at the confluence of the Minnesota and Mississippi Rivers and heading upriver toward the southwest.

Site 1. *Railroad Trestle Remains, Fort Snelling State Park*

During 1864 and 1865, the Minnesota Valley Railway constructed the first railroad line into Minneapolis in conjunction with the Minnesota Central Railway Company. Eventually this route was part of the Chicago, Milwaukee, St. Paul, and Pacific Railway (Prosser 1966, 221). This line from St. Paul to Minneapolis passed through Mendota on the south bank of the Minnesota River to Fort Snelling, and to Minnehaha Park. The remains of this rail line are seen in the current Minnesota River channel where it travels under the Mendota Bridge along the riverbank on both sides. The remains consist of wooden pilings near and in the river and earth works combined with wooden supports in the nearby woods. Originally, the section of pilings in the river were a trestle that was built-up to span an area of swampland that continued onto solid ground in the form of a railroad bed – located now in an area called Picnic Island. From here, the railroad bed led to a wooden swing bridge that spanned the river's original channel near the southwest tip of Pike Island. The current river channel was created in the early 1960s to improve navigation for barge traffic.

The Chicago, Milwaukee, St. Paul, and Pacific Railway line ran along the south bank of the Minnesota River – traveling under the Mendota Bridge twice – leading to the swing bridge on the southwest end of Pike Island. This view from 1925 was taken during the construction of the Mendota Bridge (MD2.1Bp8, Minnesota Historical Society).



This section of the railway is constructed on a raised bed through a swampy area that is now known as Picnic Island, as shown here in 1925. The raised railroad trestle running through this photograph parallel with the Mendota Bridge, is part of Site 2 that is discussed below (MD2.1Br11, Minnesota Historical Society).



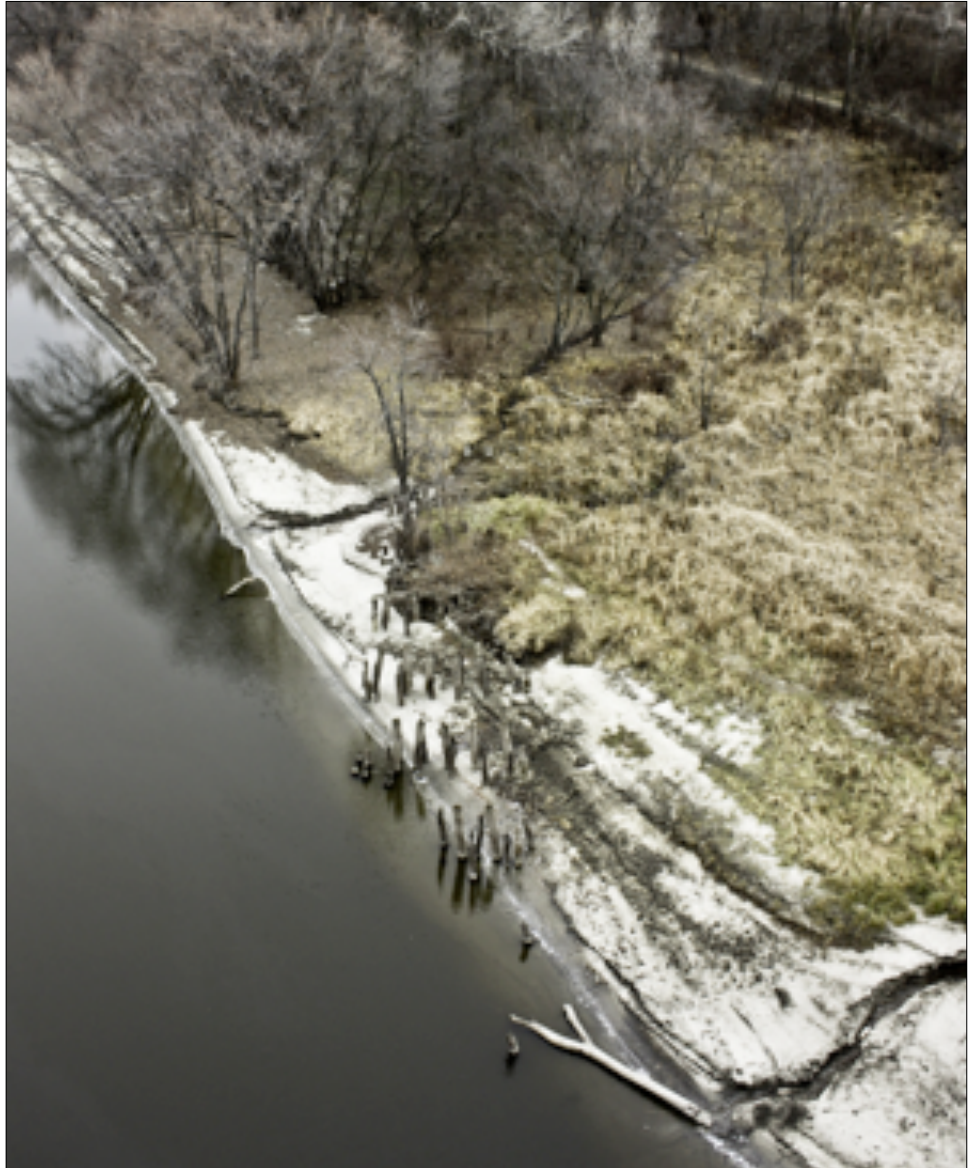
This 1925 image shows the trestle portion of the railway line crossing a swampy area that is now the current Minnesota River channel. The portion on the land to the upper left is now Picnic Island (MD2.1Br10, Minneapolis Journal, Minnesota Historical Society).



This section of the railroad trestle, shown in a 1930 postcard, matches up with the part in the upper left in the image above. The temporary railway, Site 2, used to construct the Mendota Bridge has been dismantled and the swampland in the foreground is where the current Minnesota River channel was dredged out in the early 1960s (MD2.1Br7, Minnesota Historical Society).



The railroad trestle remains on the south side of the Minnesota River as seen from the Mendota Bridge in November 2011. The portion of the trestle that would have extended into the current river channel were dredged up during the digging of the channel in the early 1960s. This site is located in Fort Snelling State Park.



The trestle pilings at river level in November 2011.



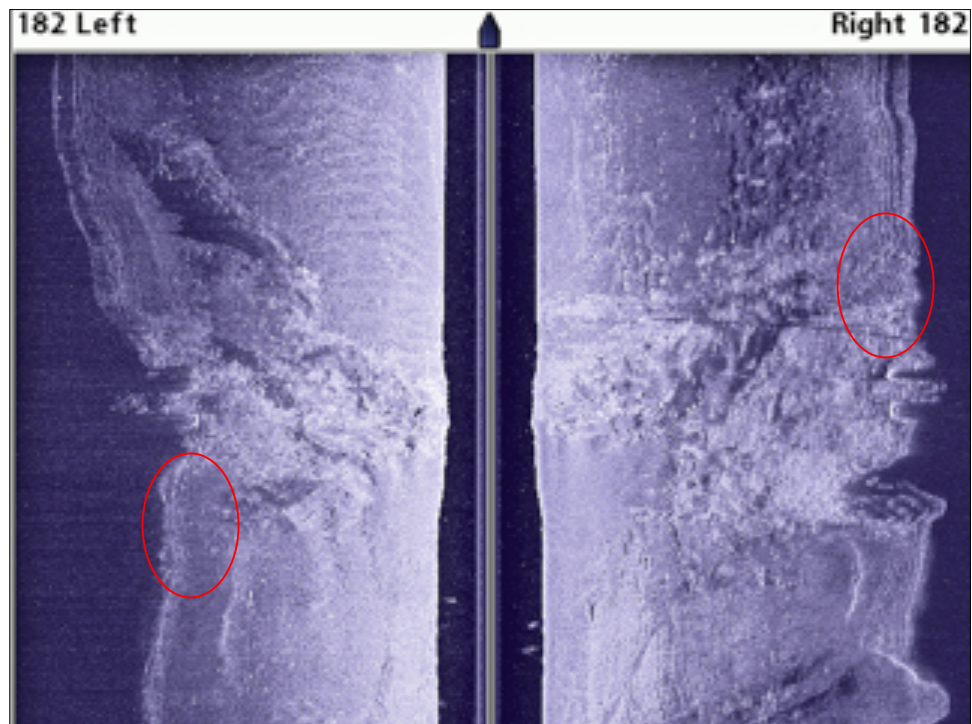
The trestle pilings at river level looking across to Pike Island in November 2011. For scale, Olson standing to the right is 6 feet tall.



A section of the railroad trestle and bed survives in the woods a distance from the river in Mendota.



The sonar image of the Minnesota Valley Railway pilings, later the Chicago, Milwaukee, St. Paul, and Pacific Railway, near the Mendota Bridge.



The railroad trestle remains on the northwest side of the Minnesota River, on Picnic Island in Fort Snelling State Park, November 2011. Note how these pilings line up with the pilings across the channel.



During high water, these pilings would be submerged to their tips or completely hidden under the water.



This abutment represents the transition between the raised railway trestle that was located in the swampland and the railroad bed built-up on what is now Picnic Island.



The wooden railroad swing bridge five years after its completion in 1870. This view is looking toward Mendota. The railroad trestle cannot be seen in this image (MH5.9F1.3r107, J. P. Doremus, Minnesota Historical Society).



The railroad swing bridge is shown here sometime between 1895 and 1902. The approach trusses were reconstructed as iron trusses sometime between 1890 and 1895 (MH5.9F1.3r97, Minnesota Historical Society).



A view of the railroad swing bridge and the southwest end of Pike Island taken from the Mendota Bridge during its construction in 1925. The main span was also reconstructed in iron at some point between 1910 and 1915 (MD2.1r21, Minneapolis Journal, Minnesota Historical Society).



This section of the railway was no longer used by the mid-1950s and the railroad bridge was dismantled in 1957 (MH5.9F1.2p66, St. Paul Dispatch-Pioneer Press, Minnesota Historical Society).



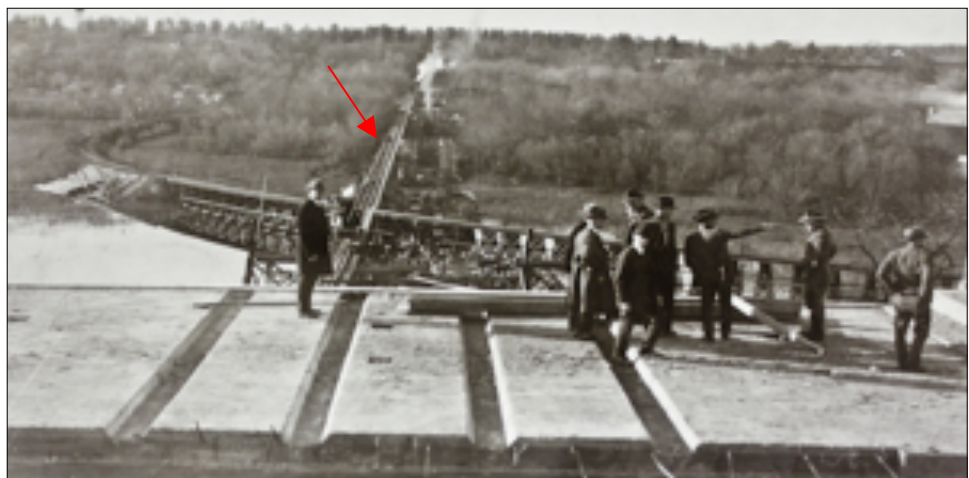
Site 2. Temporary Mendota Bridge Construction Railway and Scaffolding Remains, Fort Snelling State Park

Among and near the pilings of the 1864-1865 railroad trestle, newer wooden pilings and sections of metal rails were found and comprise what remains of wooden scaffolding and a temporary railway that was used to transport materials required for the construction of the Mendota Bridge between the years 1924 and 1926. This temporary railway is depicted in several of the photographs describing Site 1.

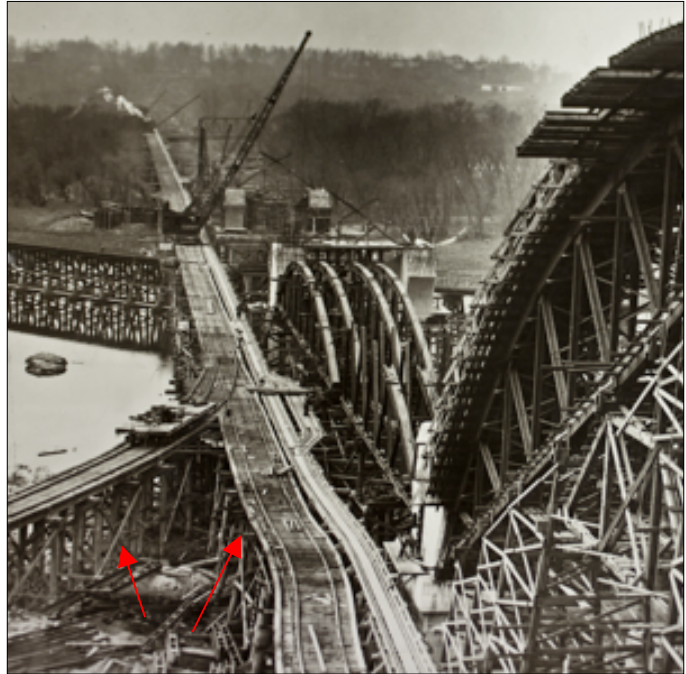
The large temporary railway, while it was not intended to last, was strong enough to handle cranes and railroad cars during 1924-1926 when it transported supplies for construction of the Mendota Bridge. The 1865 railway trestle is seen in the upper right (MD2.1Br5, Minnesota Historical Society).



These men are standing on one of the Mendota Bridge's concrete supports prior to the completion of the deck. The temporary railway in 1924-1926 ran the length of the construction site. It was built at the same height as Site 1 and crossed it to facilitate trains on both sets of rails (MD2.1Br6, Minnesota Historical Society).



The temporary railway, along with an extension off of it heading to the southwest, as it was in mid-April 1925. Site 1 leads out of the image to the left (MD2.1Bp4, St. Paul News, Minnesota Historical Society).



A mid-September 1925 image of the temporary railway. Remains of the wooden scaffolding shown under the second arch are also part of Site 2. Site 1 is also seen running across the image (MD2.1Br1, Minnesota Historical Society).



These pilings are the remains of both the temporary railway and the scaffolding used to construct the Mendota Bridge located on the south bank of the Minnesota River and the west side of the bridge.



These pilings, located on the east side of a Mendota Bridge support on the south side of the river, are the remains of scaffolding used to construct the bridge.

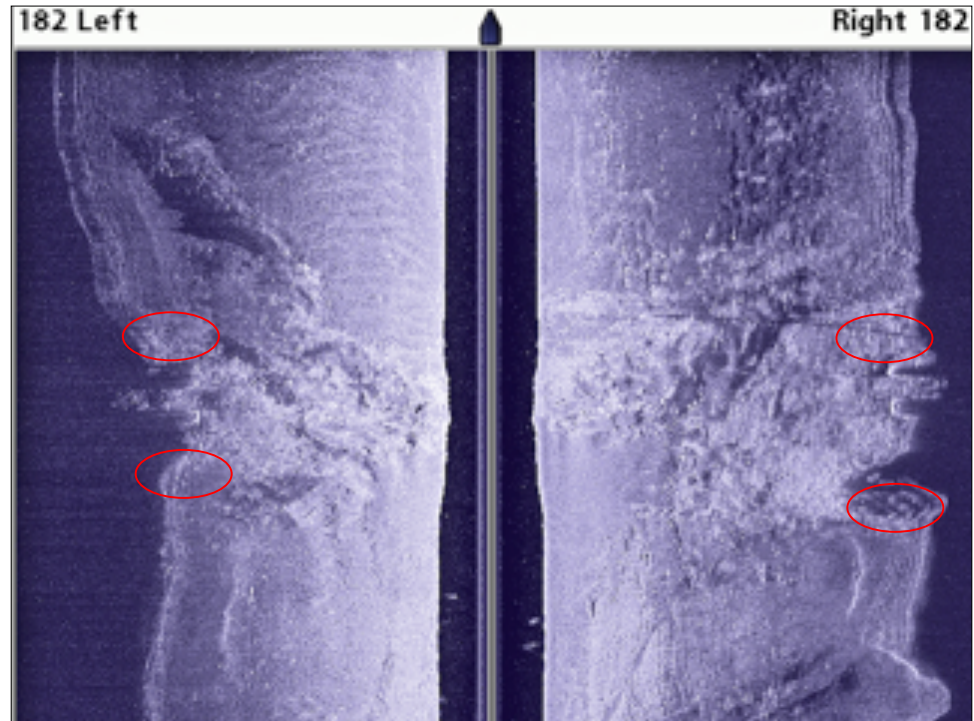


The area below the Mendota Bridge contains many metal artifacts associated with the railways and scaffolding. Some artifacts were previously buried under the riverbank but the rise and fall of the river has softened the banks, causing erosion and the loosening of the soil.



This image was taken from the north side of the river channel looking south. The pilings on the left in this image are remains of the scaffolding and the pilings on the right are part of the temporary railway.

The sonar image of the temporary railway pilings and the construction scaffolding near the Mendota Bridge.



These pilings are located on the north side of the river channel on the west side of a Mendota Bridge support. The pilings grouped to the right are from the temporary railway and the shorter pilings near and under the support are from construction scaffolding.



On the north bank of the river, the pilings in the foreground and under the Mendota Bridge support are the remains of scaffolding. The line of pilings just beyond the support from the temporary railway and the pilings in the distant background are part of Site 1.



Site A. Mendota Ferry, Fort Snelling State Park

The Mendota Ferry was established by Franklin Steele sometime after 1837, probably in the early 1840s. Steele owned the ferry until 1860 when General Henry Sibley, the future governor of Minnesota, purchased it and hired Treffle Auge to operate the franchise. Auge procured the ferry from Sibley in 1865 and held it about 40 years, with his son Jim joining him. C. J. Clarkson acquired the ferry in 1905 or 1906, operating her until the completion of the Mendota Bridge in 1926 made the ferry obsolete (Lehmann 1926). The ferry's first location is shown on an 1858 survey map as being just upriver from where the river separates into two channels that creates Pike Island. MHM surmises that after the construction of the Minnesota Valley Railway line to Minneapolis in 1864-1865, the ferry landing moved just west of the railroad swing bridge since it is apparent that the bridge approach on the north side of the river channel destroyed the ferry landing. This second and last location of the Mendota Ferry was on what is now known as Picnic Island in Fort Snelling State Park. There is no visible physical evidence of this ferry landing, but the crossing was located just west of the railroad swing bridge and – by 1924 – the under construction Mendota Bridge in the old channel of the Minnesota River.



A portion of an 1855 survey map indicating where the road on the "Ferry Reservation" led to the first Mendota Ferry crossing, shown as a dotted line going across the river. The corner of Fort Snelling is seen up the bluff (Original Land Survey Maps of Minnesota Collection 1855).



This approach by the Mendota Ferry to Fort Snelling shows the crossing prior to its relocation upriver. Since the swing bridge is not in the photograph, this image was taken prior to 1864 (MH5.9F1.3r141, Whitney & Zimmerman, Minnesota Historical Society).

The significance of the Mendota Ferry service across the Minnesota River near Fort Snelling is clear by its long existence – between 85 and 89 years. This ferry was the only consistent way for people, wagons, animals, goods – and later – motorcycles, cars, and trucks, to cross from Mendota into Hennepin County from the late 1830s or early 1840s to late 1926. Lastly, it was the first ferry crossing on the Minnesota River.

The Mendota Ferry and crossing around 1870, when Treffle Auge owned it. The man on the ferry may be Auge and the two little girls might be related to him (MH5.9F1.3p25, Minnesota Historical Society).



The Mendota Ferry with the Swing Bridge in the background, in the 1880s (MH5.9F1.3r142, Minnesota Historical Society).



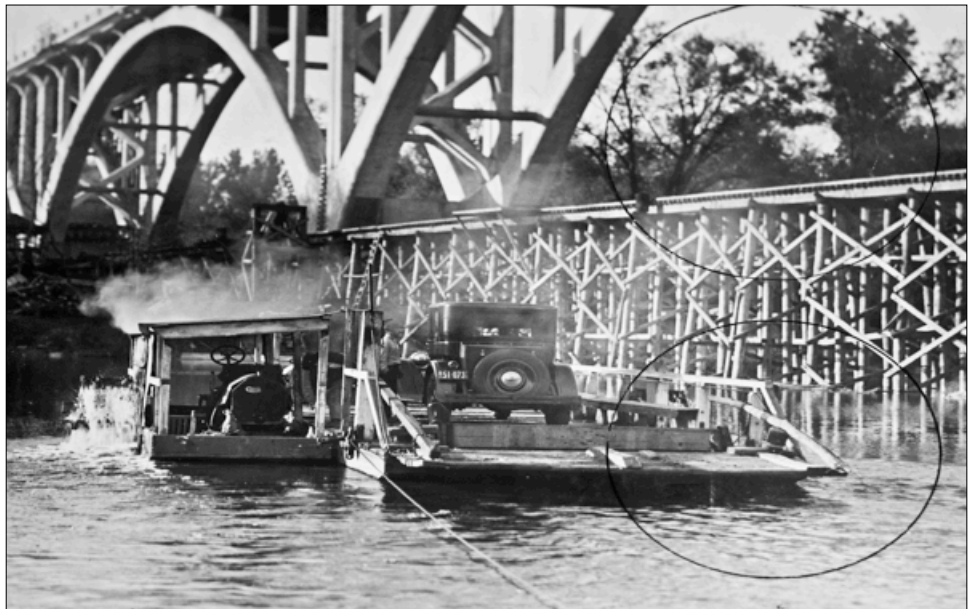
The Mendota Ferry carrying a passenger with his horse and buggy in 1904. Note the ferry's capstan in the foreground (MH5.9F1.3p20, Ingersoll, Minnesota Historical Society).



The Mendota Ferry around 1915 with a view of C. J. Clarkson's buildings in the background. Note the metal approach and main span of the Swing Bridge, replacements for the original wooden structure (MH5.9F1.3r31, Minnesota Historical Society).



In its later years the Mendota Ferry was motorized, with a paddlewheel propelling the ferry across the river, guided by its line. In this 1925 image of the ferry transporting a car, the Mendota Bridge is under construction and a section of the temporary railway – Site 2 – is seen here (HE5.15p6, St. Paul Dispatch, Minnesota Historical Society).



This view taken from the under-construction Mendota Bridge shows the Clarkson farm and the motorized ferry at its dock in 1925 (MD2.1r22, Minneapolis Journal, Minnesota Historical Society).



Site 3. Concrete Support, Fort Snelling State Park

A concrete support was seen on the southeast side of the river opposite a drainage outlet during low water conditions. The purpose of the structure is unknown, but it may have been part of a tower for electrical overhead lines or landing field lights for the approach to the airport.



A concrete support in Fort Snelling State Park.

Site B. Lyndale Avenue Drawbridge, Bloomington

The Lyndale Avenue Drawbridge was completed in 1920 and was in use until 1960, when I-35 was extended southward and over the Minnesota River (City of Bloomington 2004, 8). No evidence of the drawbridge remains; Lyndale Avenue on the north side of the river now terminates at a parking lot and the boat launch MHM used during the survey, just east of the I-35W bridge.

The Lyndale Avenue Drawbridge in 1940 (MH5.9BL4p1, Minneapolis Tribune, Minnesota Historical Society).



An oil tanker constructed at Port Cargill heads downriver under the Lyndale Avenue Drawbridge on 5 November 1943, one month after USS *Agawam* took the same path (HE5.25r22, Minneapolis Star-Journal, Minnesota Historical Society).



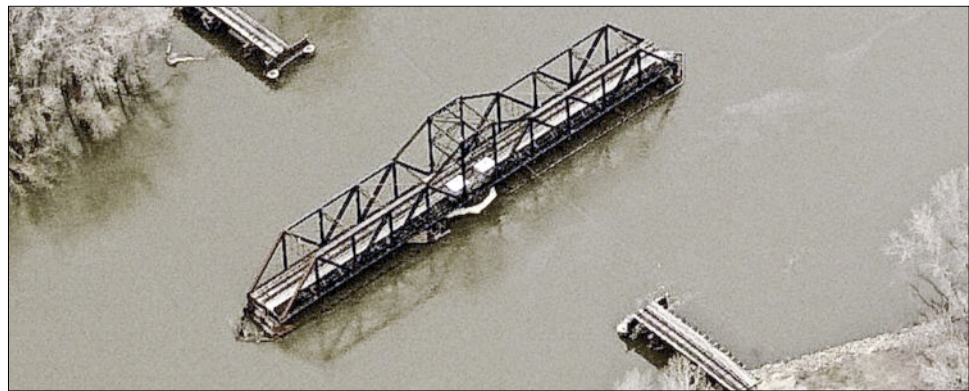
Site 4. Dan Patch Line Swing Bridge, Savage

The Dan Patch Line Swing Bridge was constructed in 1908 across the Minnesota River, about 3.5 miles upriver of what is now Highway 35W in Savage, by the Minneapolis, St. Paul, Rochester and Dubuque Electric Traction Company. In 1918 this section of rail became the Minneapolis, Northfield and Southern Railroad and the Soo Line bought it in 1982. Today the Canadian Pacific Railway have possession of the line and the bridge is currently in an open locked position to allow unimpeded barge traffic up and down the river (Weeks 2008c).

An aerial photograph of the Dan Patch Line Swing Bridge in Savage (Bing.com).



The open Dan Patch Swing Bridge allows barge traffic to travel up and down river. MHM crossed on both sides of the bridge during the survey with several feet of water depth under the boat (Bing.com).



Site 5. Port Cargill Dry Dock/Launch Ways and Barge Piers, Savage

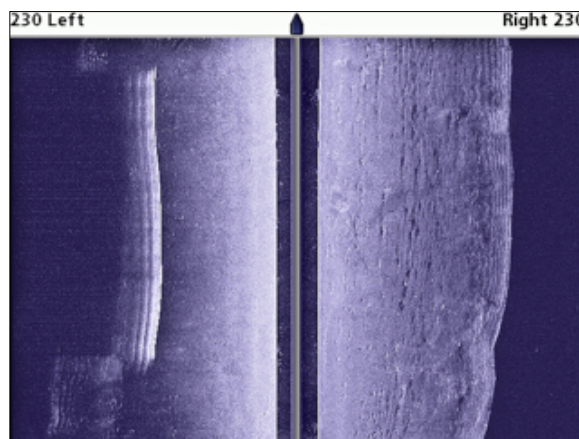
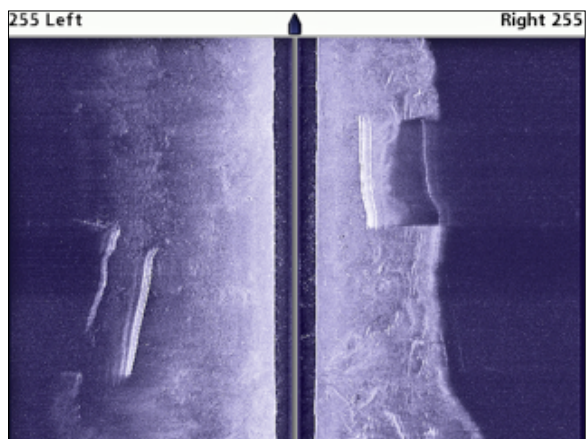
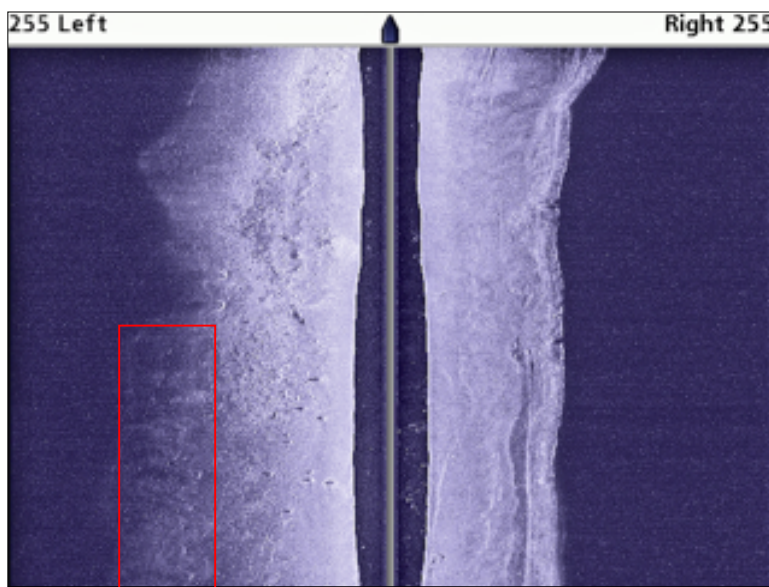
Port Cargill in Savage is, to this day, a working port with barges carrying bulk commodities down the Minnesota River to the Mississippi. Of particular interest in terms of maritime infrastructure are the dry dock/launch ways MHM saw during the survey. Exposed because of low water conditions, these platforms serve as a safety net for Cargill's barges as the river water recedes, providing a sturdy base for their expensive watercraft that prevent the grounding and damaging of these vessels.

A section of Port Cargill as seen from the Minnesota River.



A close-up of one of the dry docks/launch ways at Port Cargill.

MHM's sonar image of Port Cargill's maritime infrastructure. Much of the dry docks/launch ways are above the surface of the river water and therefore are not seen as obvious anomalies, but parts of them do have an acoustical signature outlined by the red rectangle.



During MHM's survey several floating barges were moored at Port Cargill.

Site 6. *Bloomington Ferry, Bloomington to Scott County*

Joseph Dean and William Chambers established the Bloomington Ferry in 1852 (Jordan 1949, n. 9). The ferry operated until 1890, when the construction of the Bloomington Ferry Swing Bridge made the ferry crossing obsolete (City of Bloomington nd).



The Bloomington Ferry crossing is marked as a dotted line on this 1855 survey map (Original Land Survey Maps of Minnesota Collection 1855).

The Bloomington Ferry as seen in a May 1856, rendered by artist Edwin Whitefield (HE5.15p5, Minnesota Historical Society).



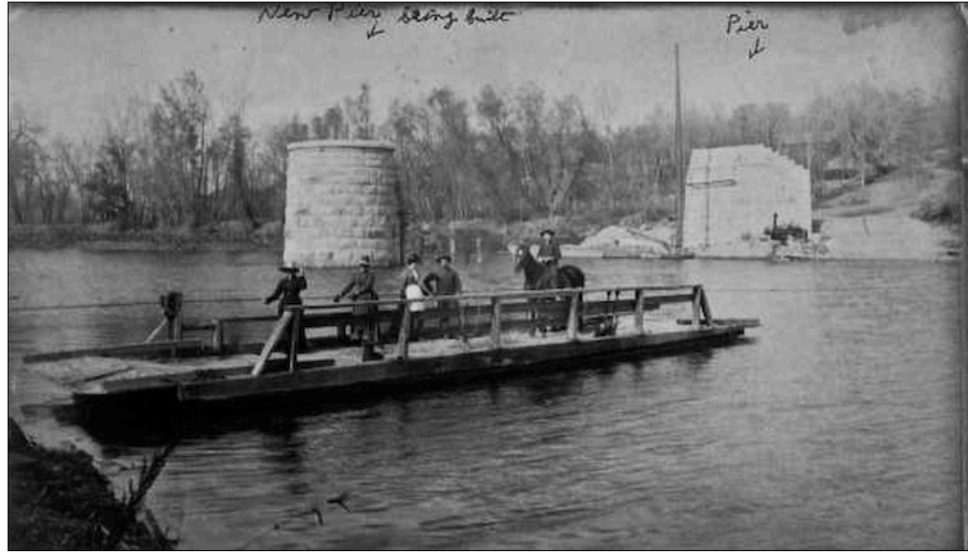
This depression is probably the location of Bloomington Ferry crossing, just downriver from the current Bloomington Ferry Trail Bridge, as it looked in mid-February 2012. To date, this is the only physical evidence of a ferry crossing on the Minnesota River yet located.



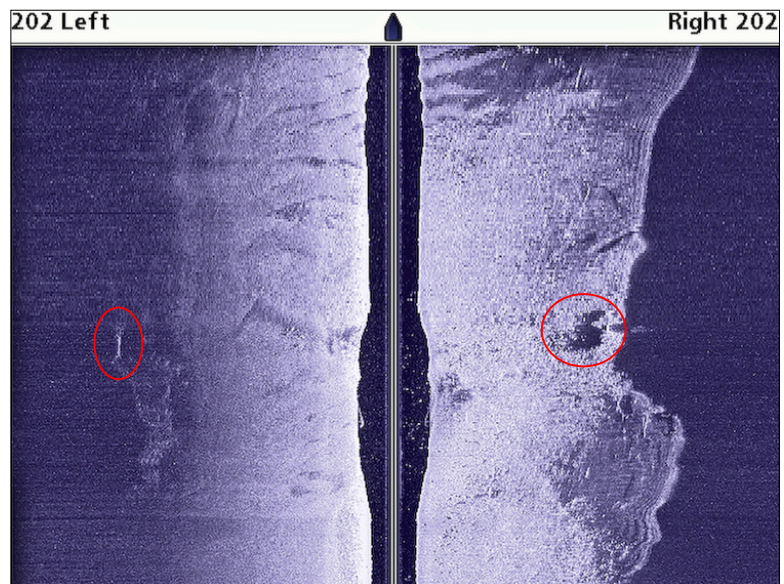
Site 7. *Bloomington Ferry Swing Bridge, Bloomington to Scott County*

The Bloomington Ferry Swing Bridge was constructed across the Minnesota River near the Bloomington Ferry in 1889. The bridge was long lasting, only being closed in 1976. Plans to incorporate the bridge into a regional trail were put on hold when it was determined that the bridge was structurally unsound. It was demolished in the 1990s and a purpose-built pedestrian trail bridge took its place in 1998, integrating the rectangular piers on both sides of the river into the new bridge's supports (Weeks 2008b).

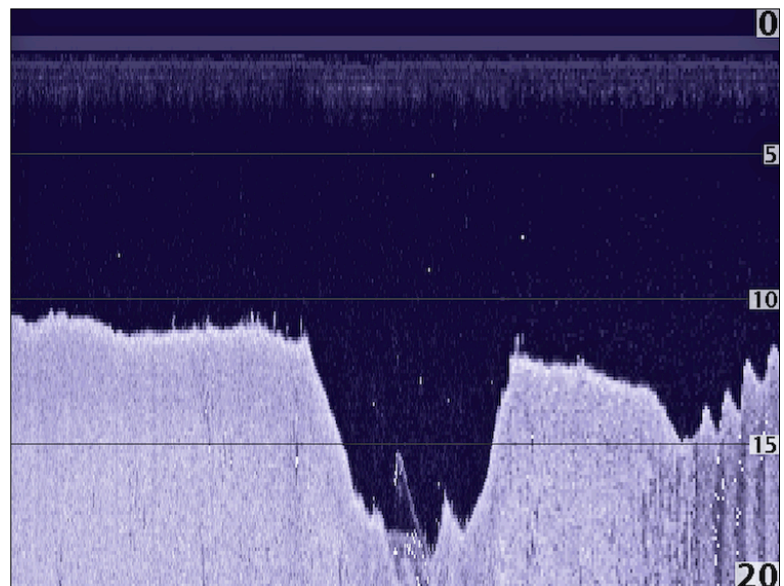
This image from 1889 is important since it not only shows the Bloomington Ferry but the construction of the Bloomington Ferry Swing Bridge round and rectangular piers in the background (Courtesy of the Scott County Historical Society, Shakopee, Minnesota).



MHM's sonar image of the original limestone piers of the Bloomington Ferry Bridge, currently supporting the Bloomington Ferry Trail Bridge.



This sonar down image shows the deep hole left by the dismantling of the Bloomington Ferry Bridge's round pier in the middle of the Minnesota River channel.



The Bloomington Ferry Trail Bridge in mid-February 2012, showing the original Bloomington Ferry Bridge's piers in place.



The south bank Bloomington Ferry Bridge pier is on the left, the north bank pier to the right.

Site 8. *Peavey Company Barge Pier Remains, Shakopee*

In the same year that the F. H. Peavey & Company changed their name to the Peavey Company, the firm constructed and opened a grain elevator and barge pier in Shakopee. On 14 August 1963, the Peavey Company's Annual Report confirmed the "completion of the terminal on the Minnesota River near Minneapolis" (Peavey Company Records 1963). The remains of the Peavey Company Pier is composed of wood and metal towers once used to secure bulk commodity barges for the on-loading of cargo.

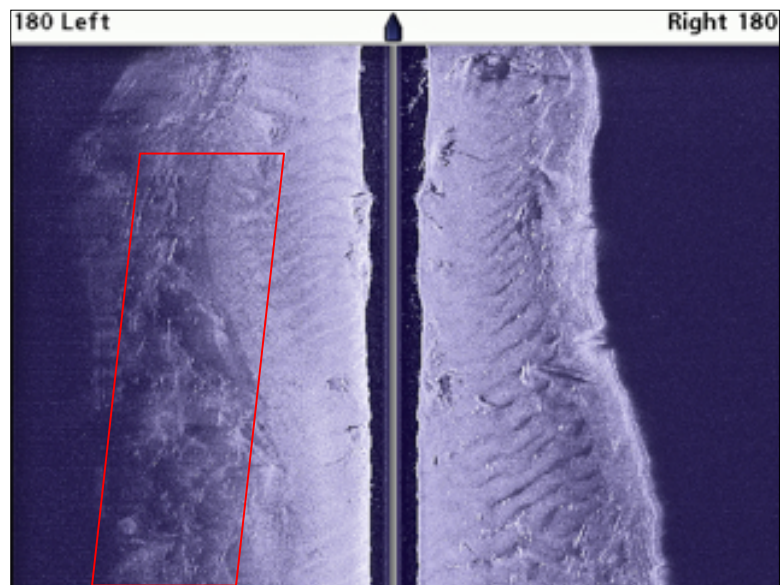
An aerial photograph of the Peavey Company Barge Pier in 1971, with a barge loading on grain from the Peavey elevator (John R. Borchert Map Library).



A recent aerial image of the Peavey Barge Pier showing a log jam that has accumulated there over the years (Bing.com).



MHM's sonar image of the Peavey Barge Pier. Much of the site is clogged with logs and debris.



The Peavey Barge Pier as it looked from the river during the Minnesota River Survey 1 in mid-November 2011.



The Peavey Barge Pier and log jam as seen in early January 2012.



Site D. *Murphy's Ferry and Landing, Shakopee*

On 3 July 1854, Richard Murphy obtained a license to operate a ferry on the Minnesota River, downriver one mile of Shakopee, at the place known as Murphy's Landing. Murphy was a government Indian agent and also operated Murphy's Inn near his ferry crossing (Neill and Bryant 1882, 295, 661). The location of the inn and the surrounding area is now The Landing – Minnesota River Heritage Park, founded in 1969 as Historic Murphy's Landing. The remains of Murphy's Inn are part of the historical interpretation of the site as are several original buildings representing different periods of Minnesota's history that have been relocated to The Landing and preserved (Three Rivers Park District nd).



The location of Murphy's Ferry one year after Richard Murphy acquired the license in 1854 (Original Land Survey Maps of Minnesota Collection 1855).

This section of the Minnesota River, at the place historically known as Murphy's Landing, resembles a steamboat landing or levee. However, debris from road construction during the mid-20th Century has been dumped in the area. Therefore, what resembles fieldstone that would have been transported to the river for rip rap to stabilize the riverbank could actually be construction debris. MHM is confident that Murphy's Landing was a stopping point for steamboats during the 19th Century, but the precise location and look of the levee cannot be determined. Further, the exact location of Murphy's Ferry cannot be determined due to the great changes in the river over the decades.



This Peavey Company barge mooring platform is located at The Landing, just upriver from the 1963 barge pier.



Site E. *Ferry Crossings, Shakopee to Carver and Hennepin Counties*

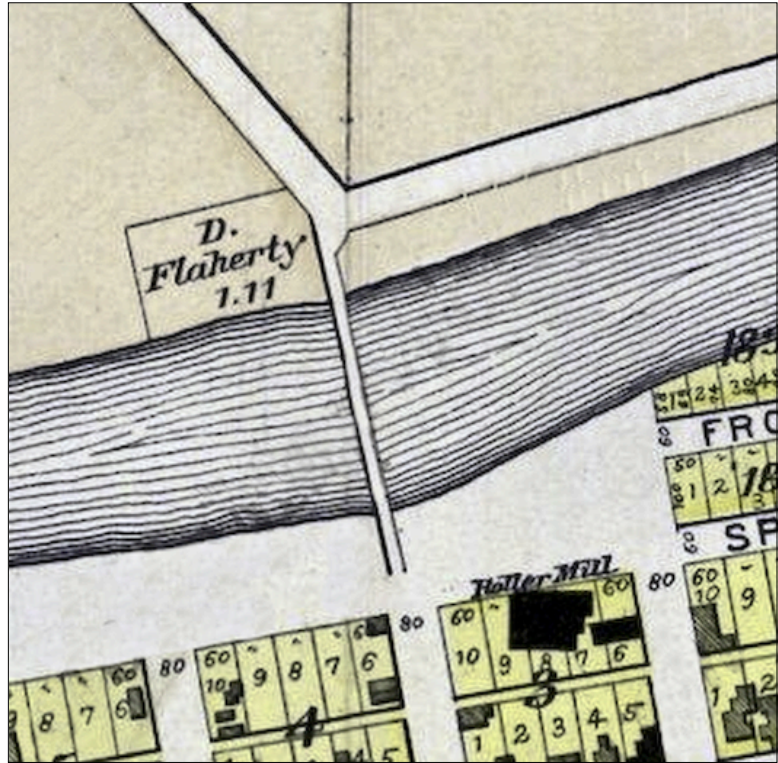
Two ferry crossings were established in Shakopee, one linking the north side of the Minnesota River with Naumkeag Street and the other upriver, with Cass Street. The upriver ferry was licensed on 1 January 1855 by Luther M. Brown. Although it was reported to be “of short duration” (Neill and Bryant 1882, 295), the ferry was present on the 1874 map below. MHM is unsure when the downriver ferry crossing was established or how long it lasted, but both of the ferries probably went out of business by 1880 when the swing bridge was completed off Lewis Street, between the two ferry landings.



Two ferry crossings are shown on this Shakopee map from 1874 (Andreas 1874).

Site F. *Lewis Street Swing Bridge, Shakopee to Carver County*

The Lewis Street Swing Bridge in Shakopee was opened in 1880, constructed to increase business opportunities in Shakopee. The bridge was 409 feet long with a round pier in the Minnesota River channel that served as the pivot point. The design of this swing bridge is rather unique, with “extremely short endposts.” A new bridge was constructed 300 feet upriver from the Lewis Street Swing Bridge in 1927 at the foot of Holmes Street (Cridlebaugh and Holth 2012, pers. comm; Granger, Kelly, and Gesick 2006, 2). In 1942 the Lewis Street Swing Bridge was dismantled and the Highway 101 bridge was constructed at the same location.



The location of the Lewis Street Swing Bridge in Shakopee (Balliet and Volk 1898).

Sternwheel steamer
Flora Clark moored at
Shakopee with her
gangplank lowered,
upriver from the Lewis
Street Swing Bridge
around 1899
(HE5.11Fp1, Minnesota
Historical Society).



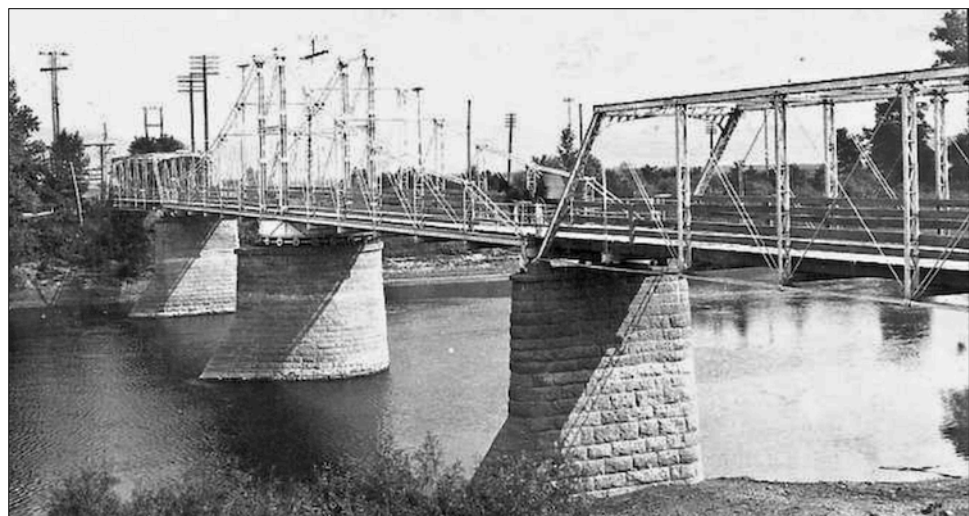
A postcard of the Lewis Street Swing Bridge around 1910 (MS3.9SH4r1, Minnesota Historical Society).



A postcard of the Lewis Street Swing Bridge around 1910 (MS3.95H4r2, Minnesota Historical Society).



The Lewis Street swing Bridge from the north side of the Minnesota River looking south (Postcard).





The aerial image on the left was taken in 1937, ten years after the construction of the Holmes Street Bridge just upriver from the Lewis Street Swing Bridge. The 1967 aerial photograph on the right shows the round pier and one rectangular pier still extant in the river channel where the current Highway 101 bridge stands (John R. Borchert Map Library).

Site 9. Holmes Street Bridge, Shakopee to Carver County

The Minnesota Highway Department constructed the Holmes Street Bridge (Bridge No. 4175) in 1927 as a fixed-span crossing. M. J. Hoffman, a bridge engineer for the highway department designed the span and the contract for the construction was awarded to the Mankato firm of Widell and Company, while the bridge's steel components were produced at the Minneapolis Steel and Machinery Company. The Holmes Street Bridge carried traffic until 1990 when a four-lane bridge for Highway 101 was constructed on the site of the Lewis Street Swing Bridge, and is now a pedestrian and bike crossing over the Minnesota River (Granger, Kelly, and Gesick 2006, 2-3).

The Holmes Street Bridge, constructed in 1927, as it appeared in early February 2012.



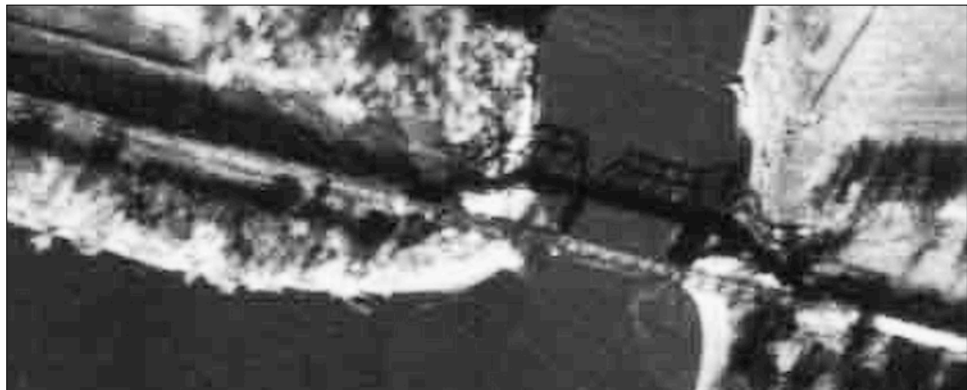
Site 10. *Railroad Swing Bridge Remains, Chaska to Scott County*

The Hastings and Dakota Railroad began construction on an iron swing bridge across the Minnesota River in Chaska in the summer of 1871. Newspapers recorded the progress of the bridge's construction, noting when the pile driving for the round pier was completed, when the limestone for the piers was put into place, and how quickly the work was completed (*Valley Herald* 1871a, c-e). This railway line was procured by the Milwaukee Road shortly thereafter. The swing bridge at Chaska was replaced by another swing bridge, constructed in 1900-1901, using the 1871 piers and a new concrete abutment was built on the river's north shore. The bridge, along with the railroad bed, was converted into a walking and bike path in 1980 but by 1996, it was determined that the round pier was unstable. The bridge was destroyed using explosives in August 1996 (Weeks 2009). The sonar image recorded during MHM's remote sensing survey indicates that pier remains are extant in the river channel, along with other interesting configurations that are likely related to the railroad swing bridge. The 1900 concrete abutment exists on the northeast side of the riverbank and a substantial section of the raised railroad trestle, closed due to safety concerns after part of the trestle was burned, is extant in the nearby woodland.

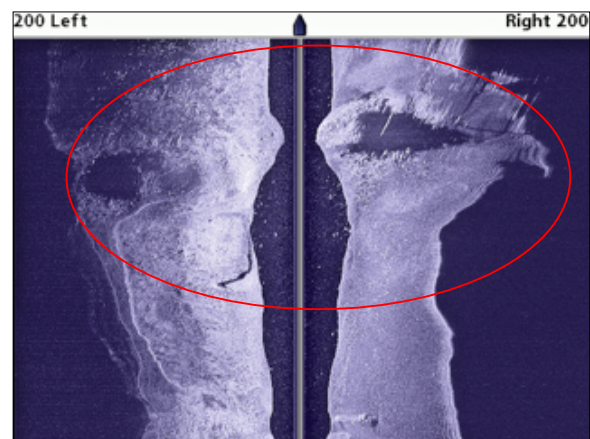


The location of the Railroad Swing Bridge in Chaska in 1874 (Andreas 1874).

The Railroad Swing Bridge in Chaska casts a defined shadow in this 1964 aerial photograph (John R. Borchert Map Library).



The right side of MHM's sonar image is the northeast riverbank and the boat is heading upriver. The dark spots are the acoustical shadows of the remains of the Railroad Swing Bridge piers; the crescent-shaped anomaly in the left image is interesting, and is likely a result of the bridge demolition in 1996.



The concrete abutment on the northeast side of the Minnesota River in late December 2011.



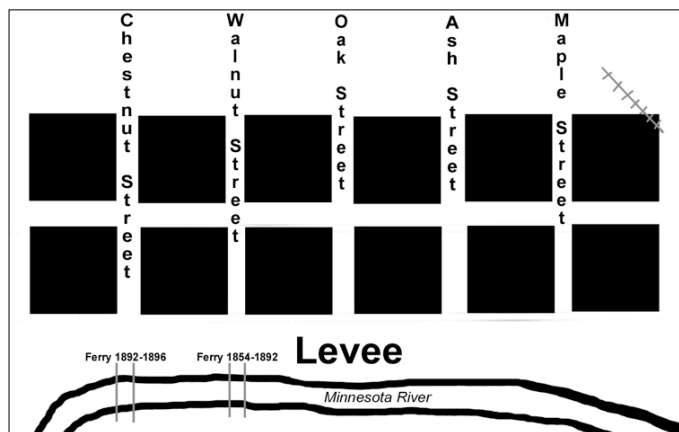
Left: The burned section of the railroad trestle.



Above: A healthy section of the railroad trestle that is fenced-off because of safety concerns.

Site G. Ferry, Chaska to Scott County

Samuel Allen established a ferry crossing in Chaska at the foot of Walnut Street in September 1854 (Neill and Bryant 1882, 358). In the 1860s, the ferry was operated by a series of Chaska residents by the names of Ellsworth, Reynolds, Barker, and Iltis (Barac 1976, 86; *Valley Herald* 1863). The local newspaper kept citizens updated on the ferry's operation and noted in April 1864 that "the ferry at this point is in perfect running order and persons can be accommodated at any hour, day or night. In mid-August 1892 the ferry crossing "moved to the foot of Chestnut St., and the approaches to the same on both sides of the river, [are] graded in fine shape" (*Valley Herald* 1864c;



The Chaska Ferry crossed the Minnesota River at the foot of Walnut Street and then at the foot of Chestnut Street.

same on both sides of the river, [are] graded in fine shape" (*Valley Herald* 1864c;

Weekly Valley Herald 1892) and operated there until the construction of a Swing Bridge at that spot. No physical evidence of either ferry crossing exists.

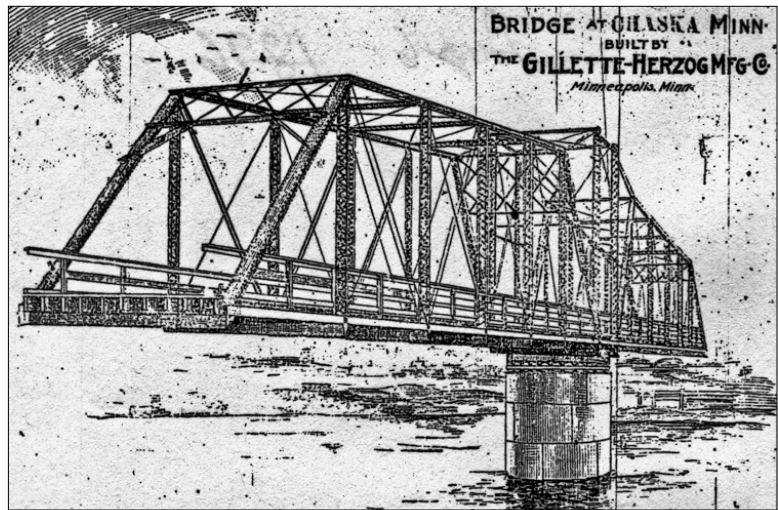
The Chaska Ferry taking a horse and buggy across the Minnesota River around 1893 at the foot of Chestnut Street (HE5.15r7, Minnesota Historical Society).



Site H. *Swing Bridge, Chaska to Scott County*

The pedestrian iron Swing Bridge in Chaska, completed in August 1896, was located off of Chestnut Street and replaced the ferry at this spot. The bridge's dedication was designed to be a grand affair, with picnics, sporting events, speeches, and a parade on 15 August 1896. People from several surrounding communities joined in the festivities, including Shakopee's fire brigade (*Weekly Valley Herald* 1896b-c). The bridge was used until 1960, when it was replaced by a new concrete fixed-span bridge.

As this newspaper advertisement for the Swing Bridge's dedication on 16 August 1896 indicates, the bridge was constructed by the Gillette-Herzog Manufacturing Company of Minneapolis (*Weekly Valley Herald* 1896b).



A postcard of the Swing Bridge in Chaska around 1907 (MC2.9CSr18, Minnesota Historical Society).



Site I. *Ferry, Carver to Scott County*

The earliest written mention of a ferry at Carver that MHM could locate was 1893. However, an 1874 atlas of Carver and Louisville Township indicates that a ferry crossing did exist by that time. It is possible that the ferry crossing was abandoned at some point after 1874, but in 1893 the Village of Carver placed a notice in the newspaper announcing “that the right to run and maintain the ferry across the Minnesota river, between the town of Louisville, Scott county and the Village of Carver, in Carver county, will be let to the lowest responsible bidder, upon such terms and conditions as has been agreed upon by the Village Council.” The ferry is rarely referred to in newspapers, but in March 1905 the ferry between Carver and Merriam Junction had begun service for the season, with a Mr. Olson in charge (*Carver Free Press Weekly* 1893; *Weekly Valley Herald* 1905). The Carver-Merriam Junction route is the path marked on the 1874 map.



The Carver Ferry crossing (Andreas 1874).

Site J. *Railroad Swing Bridge, Carver*

In 1871 the Minneapolis and St. Louis Railway constructed a Railroad Swing Bridge in Carver that was made of wood with limestone piers. The wooden bridge was replaced with an iron swing bridge fitted on top of the original piers in the 1890s. By 1915 the iron bridge was declared unsafe. In 1917 the original round pier was dismantled and three concrete piers were put in its place and two more concrete piers were constructed on each riverbank. These five new piers, along with two original 1871 piers, made up the supports for the new rails. In 1960 the Chicago and Northwestern Railway acquired the rail line and by 1991 this line into Carver was acting as a spur that shipped cargo to the sugar plant in Chaska, and in 2007 the bridge was closed (Weeks 2010). During the sonar survey in November 2011, MHM was required to stop roughly 300 yards from Carver due to immense sand bars and snags blocking the river channel. The 1917 configuration of piers at the Carver Bridge caused a persistent logjam at that spot and the City of Carver removed the bridge in Autumn 2011.

The wooden Carver Railroad Swing Bridge under construction in 1871. This bridge and the wooden swing bridge connecting Mendota with Hennepin County are nearly identical (MC2.9CRp7, Minnesota Historical Society).



An aerial view of the Carver bridge with its persistent logjam (Bing.com).

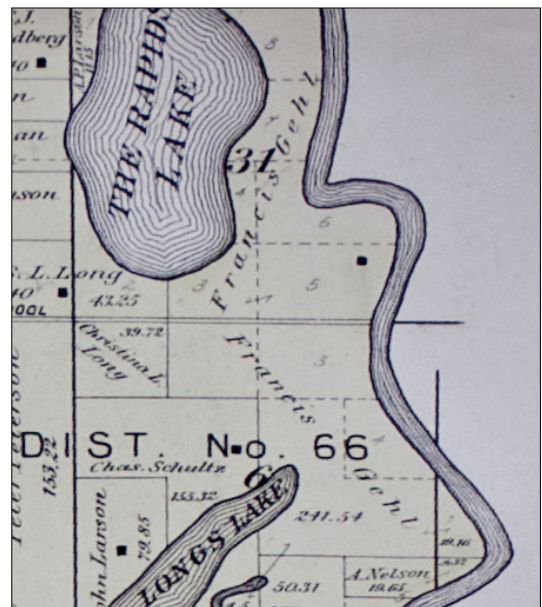


The Carver log jam in late December 2011 after the bridge was removed.



Site 11. Landing and Portaging Site, Gehl-Mittelsted Farm, San Francisco Township

The town of San Francisco was founded in 1854 and initially was set as the seat of Carver County in 1855, although the seat was moved to Chaska in 1856. Unfortunately, however, several buildings and a warehouse that made up the settlement were swept away in the flood of 1863, therefore ending the town itself. The town's location became part of the farm of Henry Gehl (Neill and Bryant 1882, 373) where a house constructed of Carver brick was built in 1863 and that was enlarged in 1881. The farm had a frame barn for cattle and in 1884, it expanded with the construction of a stone barn to accommodate animals during the winter. In 1995 the 1,500-acre farm was sold to the Minnesota Valley National Wildlife Refuge and is part of the Rapids Lake Unit (*Weekly Valley Herald* 1884; Mugford 1995). The Gehl-Mittelsted house with its rare brick outhouse

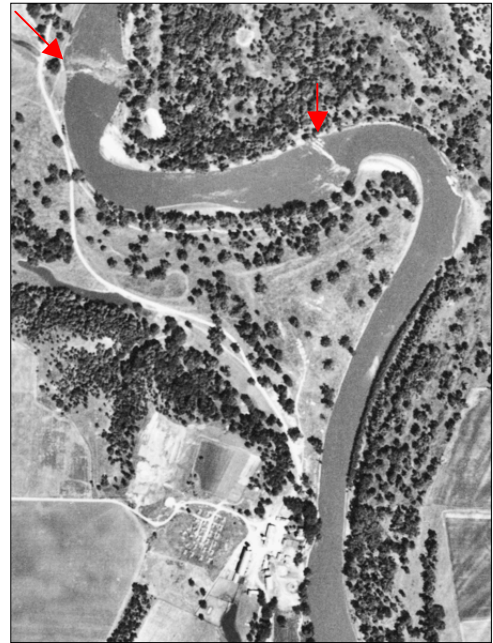


The location (black square) of the Gehl farmhouse (Balliot and Volk 1898).

still stand on the northwest bank of the Minnesota River and the remains of the stone barn are nearby. In 2006 the house was listed on the Preservation Alliance of Minnesota's list of '10 Most Endangered Historic Places' (Francisco 2006). When MHM toured the area on foot in late December 2011, it was apparent that the roofs of the house and outhouse had received some rudimentary protection from the elements and the windows are boarded-up. Regardless, the house is deteriorating.

In regards to MHM's river survey, the river bluff where the house stands is littered with hundreds of artifacts, although it is impossible to determine which artifacts washed into the area, and it is apparent that the area was once a steamboat landing. As mentioned above in the case of the Roberts Line steamers *Jeannette Roberts* and *Time and Tide*, by necessity steamboats would portage their cargo and passengers around the Carver Rapids to another boat or in order to make the vessel light enough to navigate the rapids safely. The Gehl farm and the accessible landing below the house seems to be the most likely candidate for a portaging place above the rapids.

This aerial photograph from 1940 shows the two courses of the Carver Rapids in relation to the Gehl-Mittelsted Farm in the lower center part of the image. The road leading from below the rapids to the farm is currently a walking path for the wildlife refuge. MHM surmises this road was used for portaging in the 19th Century (John R. Borchert Map Library).



This section of rapids – the lower rapids - is closer to Carver and extend across the entire river channel.

This section of rapids – the upper rapids – even though they protrude higher out of the river, do not extend completely across it. Currently there is a small deep navigable channel on the south side of the river at the bottom right of the image.



The landing below the Gehl-Mittelstedt farmhouse in late December 2011.



MHM conducted a terrestrial survey of the river bluff and landing below the Gehl-Mittelstedt farm in late December 2011. While the riverbank to the left in this image is eroding away and a slough has broken through just upriver, it is evident that a path led down from this section of bluff to the area just below the house. The stone barn foundation is seen above (Bing.com).



The front of the Gehl-Mittelstedt farm house in late December 2011.



The farm's brick outhouse on the river bluff.

Site J. *Thompson's Ferry, Carver County to Scott County*

In 1859 Peter Thompson established a ferry crossing on his land in San Francisco Township on a ten-year charter. He later sold it to Peter Peterson who owned a parcel of land just upriver from the ferry landing (Neill and Bryant 1882, 373-374). The ferry crossing was located just downriver from the current Highway 45 bridge north of Jordan. The ferry must have gone out of business for a while after 1882 since a newspaper report stated "Jordan has just completed a new free ferry across the Minnesota river at Thompson's old place. Thus there are three free ferries across the river, one at Chaska, one at Carver, and this new one in San Francisco. Jordan expects a large trade from this side of the river via this new route." Mr. Ohman operated the ferry beginning in August 1895 and the crossing was still in operation the following April (*Weekly Valley Herald* 1895b; 1895c; 1896a).



The location of the Thompson Ferry (Andreas 1874).

Site K. *Bristol's Ferry, Carver County to Scott County*

Edmund Bristol established a ferry crossing from his land in San Francisco Township to Scott County in 1877, one that he operated until he died in 1880. His son then took over the operation and the ferry appeared to still be in operation in 1898 as indicated in that year's atlas (Neill and Bryant 1882, 373).



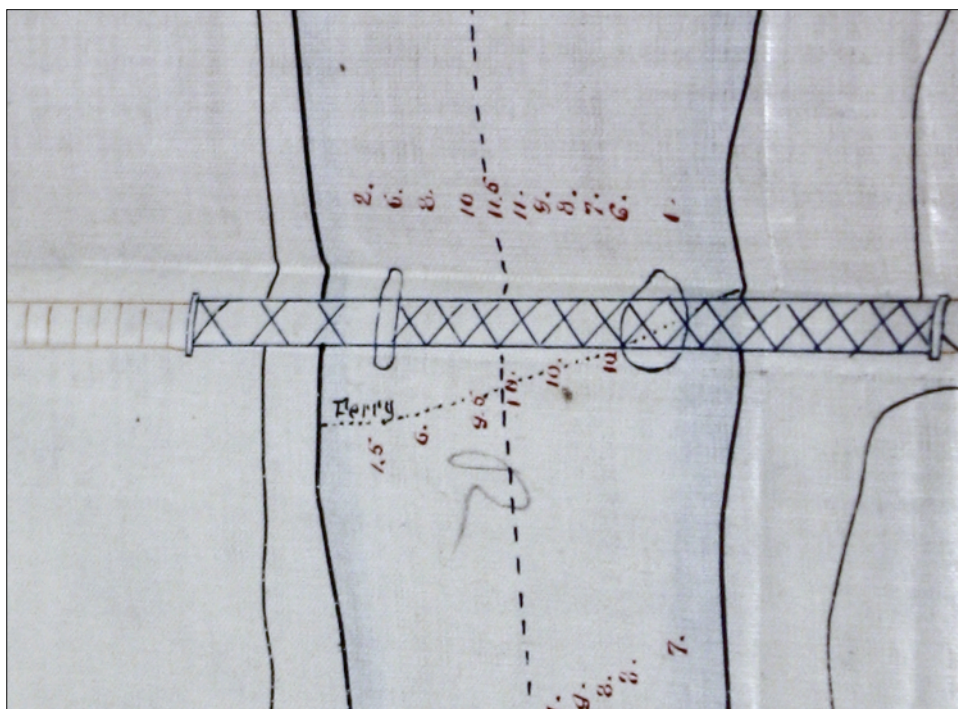
The location of Bristol's Ferry crossing (Balliet and Volk 1898).

Site L. *Ferry, Belle Plaine, Scott County to Sibley County*

The Borough of Belle Plaine was surveyed in 1856 on land owned by E. and E. L. Farnham and recorded in January 1857 (Neill and Bryant 1882, 327). A ferry crossing was established at some point, although MHM has been unable to determine a precise date. References to the ferry were found during the same year the Belle Plaine Swing Bridge was constructed that indicate cross-river trade was important to the local population, and that low water conditions actually grounded the ferry for a time. Further, while the bridge was going up, "the bridge contractor has compelled the ferryman to

move his ferry several rods down stream, in order to give room for pile-driving” – and this is shown on the only graphic representation of the ferry yet found, where the round pier of the bridge intersects the ferry’s route (*Scott County Advocate* 1879l, r-s; USACE Permit 3-51 1879). The ferry landing on the south side of the river would be located where the washed-out section of the Levee is, marked ‘sand’ in the drawing on page 56. The north side of the river has changed extensively over the decades and the location of the ferry landing on that side is a shifting sand bar. With the opening of the bridge in 1880, the ferry went out of business.

The only graphical evidence that MHM located of the Belle Plaine Ferry is this plan of the Belle Plaine Swing Bridge drawn by J. S. Sewall in April 1879 (USACE Permit 3-51 1879).



**Site 12. Belle Plaine Levee and Swing Bridge Remains, Belle Plaine, Scott County to Sibley County
Minnesota Archaeological Sites 21-SC0098, 21-SB0027**

The Belle Plaine Levee and Swing Bridge Remains represent the destination for Belle Plaine river traffic – passengers and cargo – beginning in 1856. References ‘to our levee’ exist throughout Belle Plaine’s newspapers and the most interesting of them indicated that businesses inhabited the riverbank above the levee. In early May 1858 it was reported that “one year ago there was not a single building on the Levee; now there are on the river bank an immense foundry, a flouring mill of several run of stone, two or three large warehouses, and other less notable structures without numbers. One year ago the Terrace between the Plain and the Levee, was entirely unoccupied, now it is dotted with habitations,” including the Valley House Hotel. At this time “the arrivals of steamboats at Belle Paine for last week have averaged two a day. Thus our citizens can go to any point above or below and return at their convenience. And the river travel is immense, each boat is crowded with passengers”. Steamboat ads in newspapers were common, and other ads reflected the influence that a transportation artery like the Minnesota River had on the development of a town. For example, the above-mentioned

foundry, Minnesota Machine Works, fabricated and fixed steam whistles, steam engines, and machinery for steamboats (*Belle Plaine Enquirer* 1858a).

It was quickly discovered that the Belle Plaine Levee area was prone to flooding. During the week of 17 March 1859 high water threatened Irwin and Chatillon's warehouse and other properties "on our levee". Other mentions of the levee are associated with steamboats that could call at Belle Plaine after ice-out on the Mississippi and then the Minnesota Rivers, including the *Grey Eagle* in mid-April 1859 (*Belle Plaine Enquirer* 1859a-1859b).

An advertisement for the firm of Irwin and Chatillon 'on the levee' of Belle Plaine (*Belle Plaine Enquirer* 1858a).

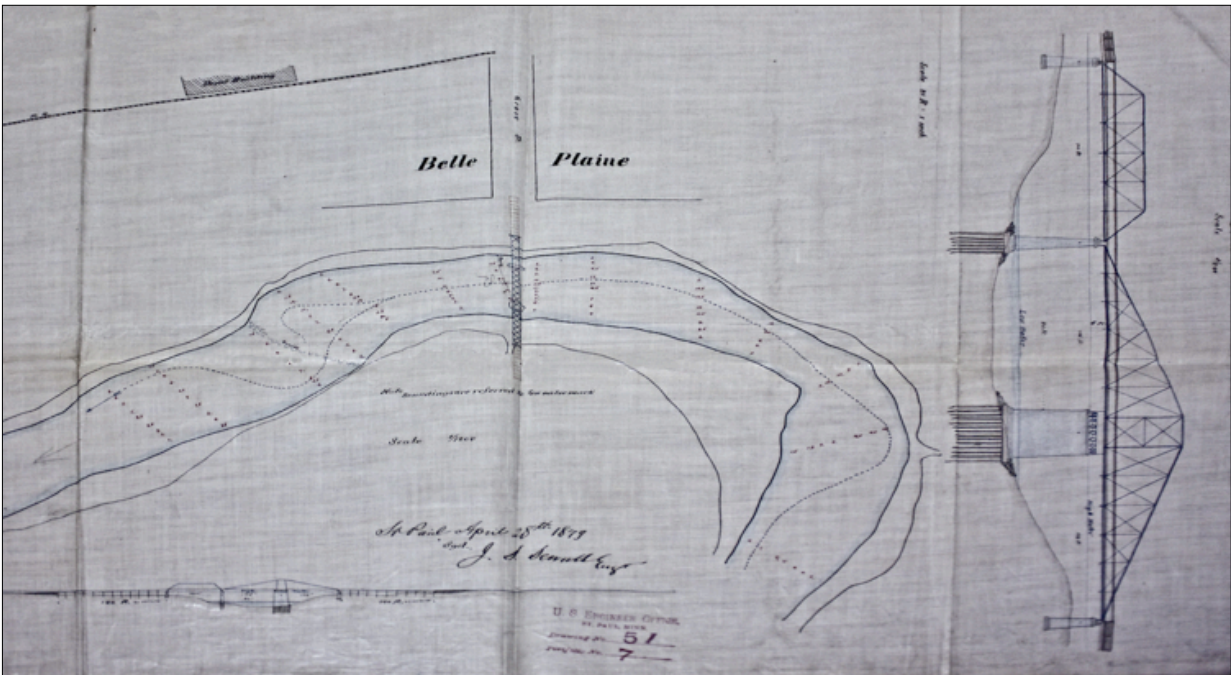
R. A .IRWIN,	H. CHATILLON.
IRWIN & CHATILLON,	
Forwarding and Commission Merchants,	
ON THE LEVEE,	
<i>BELLE PLAINE, MINNESOTA.</i>	
<p>DEALERS in Flour, Pork, Salt, Lime, &c. Will give personal attention to all business entrusted to their care, either Forwarding or Commission, and make liberal cash advances on property in Store, for sale here.</p> <p>Agents for all the Boats on the Minneecota River.</p> <p>Belle Plaine, April 1, 1858-1y</p>	

By 1866 Belle Plaine was a stop on the St. Paul and Sioux City Railroad and the levee became a transfer point for railroad passengers and cargo to steamboats heading upriver and for the ferry crossing the river to the north. As would be expected, the arrival of a railroad line in a river town affected the amount of steamboat traffic below that destination, and Belle Plaine was no exception. However, steamer operations continued between Belle Plaine and the towns upriver when the river water levels allowed (Hughes 1905, 154).

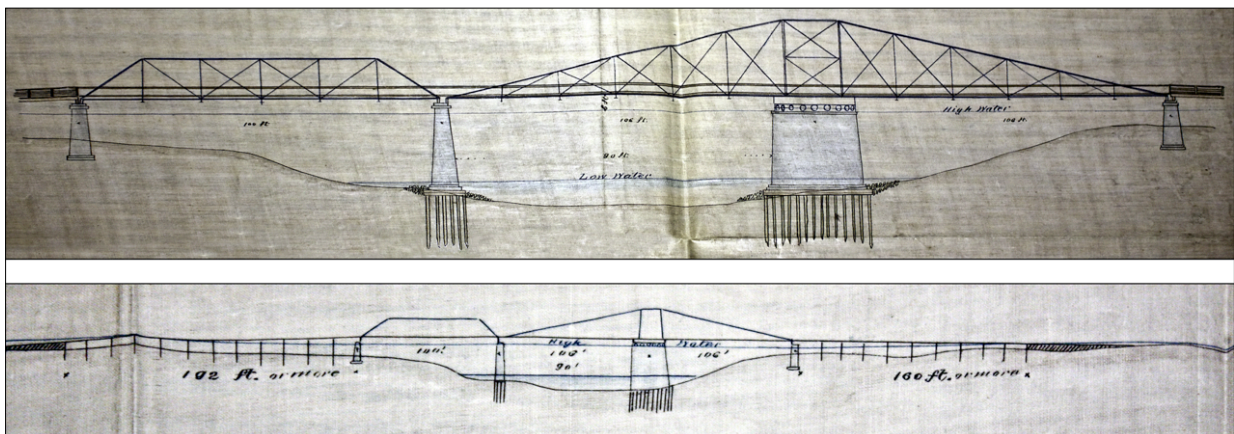
In mid-March 1878, a committee comprised of Belle Plaine citizens petitioned the Minnesota Legislature for permission to construct a bridge across the Minnesota River "at or near Grove street". The Legislature authorized the committee, along with a qualified engineer, to determine the best possible place for roads approaching the river that would meet the requirements set for them by the State of Minnesota. In early March 1879 The Legislature approved Belle Plaine's request to issue bonds to pay for the construction of the bridge and set the limit of bonds issued at \$20,000, with a minimum price of \$100 per bond. The State also directed that the bond issue would be subject to a vote of Belle Plaine's citizens and set forth the guidelines for the ballot's appearance (Minnesota Secretary of State 1878, 420; 1879, 253-254).

The construction of the Belle Plaine 'free bridge' was indeed put to a bond referendum, with much editorializing before hand by 'Certain Citizens' in the *Scott County Advocate*, where "whole scheme of bonding the borough for a bridge is a swindle, a steal and a snare." The biggest issue 'Certain Citizens' had with building the bridge was that it would benefit too few people but cost everyone a large amount of tax dollars, and that

proponents of the bridge were greatly under-estimating the cost of construction. Further, the repeated flooding of the Minnesota River would weaken the bridge too quickly, according to 'Certain Citizens', thus making the bridge a risky investment. In the end, the bond issue passed with a 35-vote majority during the week of 10 April 1879, although opponents of the project accused "the bridge men, by a superhuman effort in voting tramps and non-resident, and a free purchased of votes, produced the above result. A majority of the tax payers were against it". Survey for the bridge began within two weeks of the vote. Plans for the bridge were drawn up by engineer J. S. Sewall of St. Paul and finalized on 28 April 1879, his services paid for by the St. Paul and Sioux City Railroad General Manager J. W. Bishop (Bishop 1879; *Scott County Advocate* 1879a-d; USACE 1879).

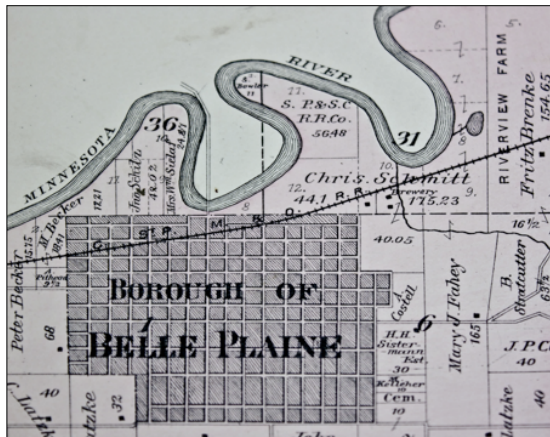


The complete Belle Plaine Swing Bridge engineer's plan dated 28 April 1879 (USACE 1879).



The plans above are the original engineer's drawings of the Belle Plaine Swing Bridge created by J. S. Sewall of St. Paul, dated 28 April 1879. The plans are creased from over 130 years of being folded, resulting in a flawed images, but all of the details are extant (USACE 1879).

For the next several months, small bits of editorial comment appeared in the *Scott County Advocate*; some were simple updates on the construction while others derided the bridge builders. It was reported “the bridge is booming. Hooper has the contract for substructure, and approaches, at which his force is now working. Next week the stone-cutters and masons will be in full force crowding the thing to completion. To the taxpayers it is an expensive luxury, and the discharged ex-deputy and insurance agent is jubilant.” In two weeks it was then reported that work was suspended and trouble was brewing among the commission assigned to oversee the construction and throughout July and August, work on the bridge was commenced and suspended several times. By early September 1879, “M. B. Farrell, the well known contractor, of St. Paul, has taken the contract for our bridge. He has everything on the ground and will begin work in a short time”. Reports of work on grading Grove Street leading to the bridge made the newspapers and by mid-December the bridge piers were complete and the work on the iron portions of the bridge was commencing (*Scott County Advocate* 1879e-k, m-q, s-v). The Belle Plaine Bridge opened sometime in 1880. The bridge had an iron frame with a wood deck supported by coursed ashlar limestone piers and abutments.



The location of the Belle Plaine Levee and Swing Bridge in Belle Plaine (Balliet and Volk 1898).



The sternwheeler *George Hays*, along with her barge, are docked at the Belle Plaine Levee to take on passengers with the Swing Bridge open in the background before 1894 (HE5.11Gp7, Minnesota Historical Society).

The only evidence of the existence of the sternwheeler *George Hays* that MHM has been able to locate are the photograph above and this report of her burning (Carver Free Press Weekly 1894).

—The excursion steamer *George Hays* which made several trips up the Minnesota river as far as this place, was burned to the water edge early Sunday morning near St. Paul.

The Bele Plaine Swing Bridge sometime before 1907 looking downriver.

The Levee is located beyond the limestone abutment on the right side of the image, out of view of the camera (Postcard).



A view of the Belle Plaine Swing Bridge from the Grove Street approach looking northward. The two men are Frank Bauman and Jack Kliefoot (Courtesy of the Scott County Historical Society, Shakopee, Minnesota).



The Belle Plaine Swing Bridge at an unknown date looking upriver (Postcard).

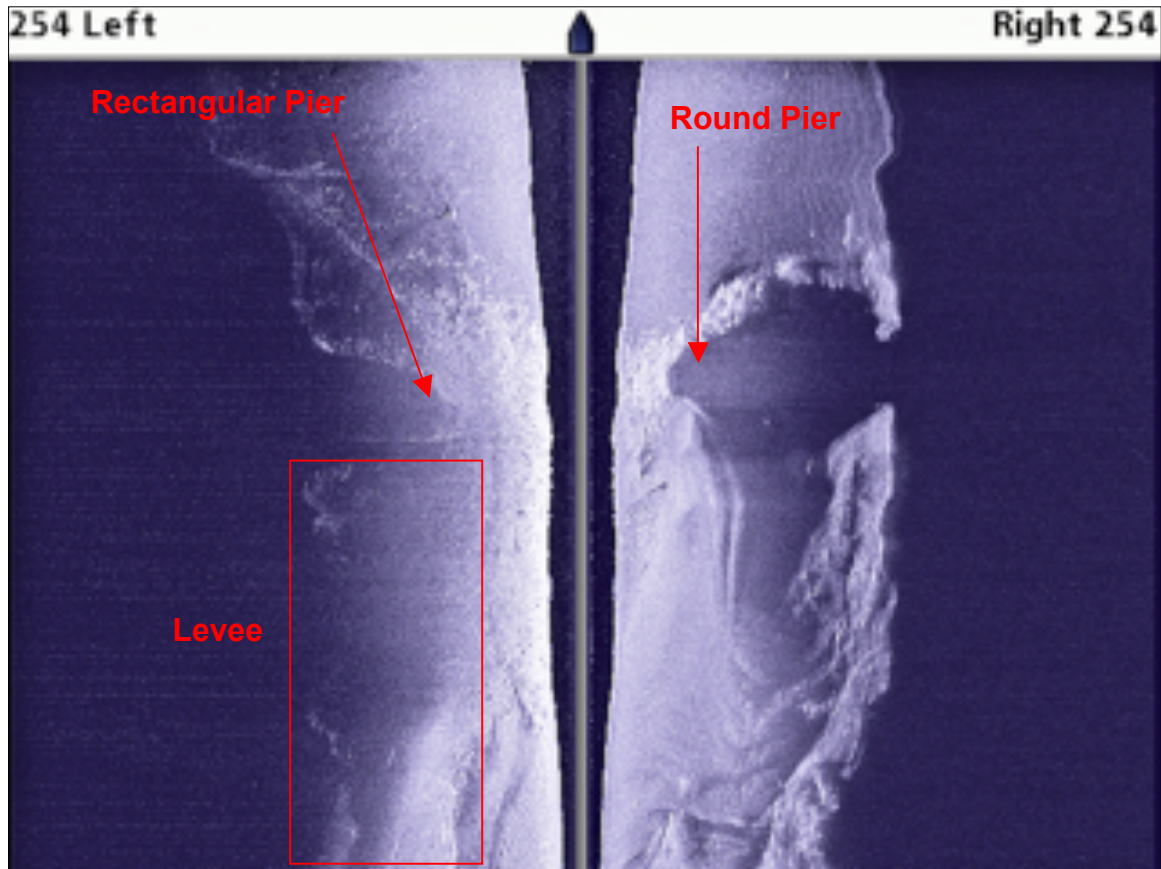


The Belle Plaine Swing Bridge and the Grove Street approach during high water (Albrecht 1977, 487).

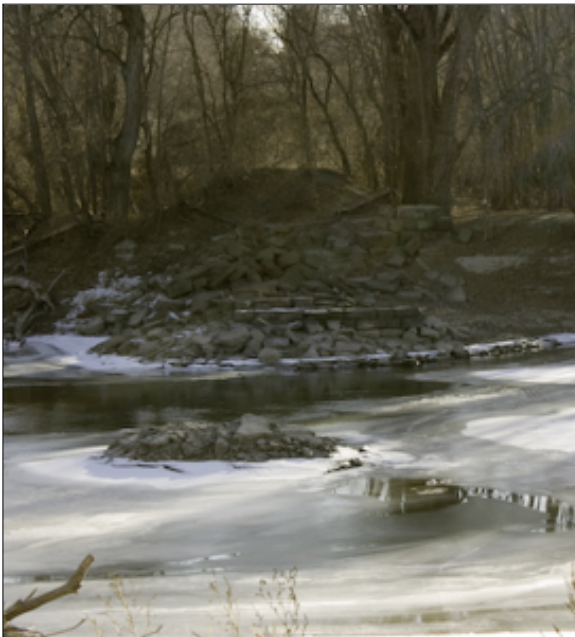


The bridge remains and levee were located and studied as part of the Minnesota River Survey 1 project. According to bridge researchers Bruce Cridlebaugh and Nathan Holth, the Belle Plain Swing Bridge is unique – neither has seen any bridge constructed like it. Although it cannot be determined through the surviving photographs whether the bridge can be classified as a Pratt or Howe design bridge, it is one or the other and is definitely an iron through truss bridge. The approach to the bridge can be defined however, and it is a “metal pin-connected half-hip Pratt pony truss” construction. The significant and interesting aspects concerning the uniqueness of the Belle Plaine Bridge is that its “upper cord is unusual in the way it slopes in a straight line...on either side of the center pier, and additionally, there seems to be no defined transition from top chord to end post. The lack of a defined end post is most unusual.” Further, because the bridge is a swing bridge, it has a cantilever action to it when opened for steamboat traffic, although swing bridges are not commonly referred to as being of the cantilever type. Interestingly, the old swing bridge in Shakopee was of a similar – but not identical – design, but was much larger. The top cord of the Shakopee bridge “does not maintain a constant slope [and] a defined endpost is visible.” The Belle Plain Grove Street bridge was torn down in February 1942, and the ice was used as a base for equipment and the dismantled sections of the bridge. Local interest was high during the process when the bridge was swung open for the first time in decades (*Belle Plaine Herald* 1942; Bruce Cridlebaugh and Nathan Holth 2012, pers. comm).

In terms of the bridge remains, the round pier that served as the swivel point for opening the bridge is prominent in the river channel during low water conditions and the bridge’s southern rectangular pier and the southern bank abutment are extant. The sonar image produced by MHM during the river survey shows these details prominently. The inside of the rectangular pier contains shale. The river has filled in completely between the rectangular pier and the southern abutment; in the 19th Century this area was part of the shallow river channel during normal and high water. The northern river abutment either doesn’t exist or is buried by sand; this section of the river has greatly changed since the bridge’s construction. A small pile of debris lies in the river channel around the bend upriver from the round pier and represents the remains of the obliterated road that led north from the bridge. The most southern portion of the site is comprised of the unpaved remnants of Grove Street that was used by steamboat passengers to reach the river or return from the river and by wagons to reach the bridge.



A sonar image of the rectangular and round piers of the Belle Plaine Swing Bridge and the Levee, recorded in mid-November 2011.



The bridge's round pier remains protrude from the river channel, the rectangular pier is near the riverbank, and the abutment rises off the riverbank to meet the approach of old Grove Street in December 2011.



This small bit rubble represents what is left of the road leading off from the bridge into Sibley County. The rest of the road has been obliterated by the shifting of the Minnesota River over the last century.

The Belle Plaine Swing Bridge remains – the abutment and round pier – as seen from the end of old Grove Street looking north in December 2011.



Old Grove Street looking toward the south as it leads to the Belle Plaine railroad tracks.



The Belle Plaine Levee is comprised of a large area of fieldstone used as rip rap to secure the sandy riverbank in place and sustain the bank during high water and flood conditions. MHM has determined that four courses of stone that resemble ‘walls’ are the remains of watercraft gangplank supports – platforms for steamboat or barge gangplanks to rest on – that provided a stable point for cargo and passenger on-loading and off-loading. If these remains were originally encased in wood they would be called cribs, like the Sandy River Steamboat Crib (21-AK0117) maritime archaeological site in Aitkin County that MHM studied in 2010 (Merriman and Olson 2010). A small square course of stones near the top of the riverbank is likely an intact gangplank support and may resemble what the four courses of stone looked like originally.



The Belle Plaine Levee as it looked in December 2011 from across the Minnesota River.

The Levee in December 2011. One of the gangplank support 'walls' is to the left of Olson.



Two of the stone courses that lie the furthest to the west on the Levee.

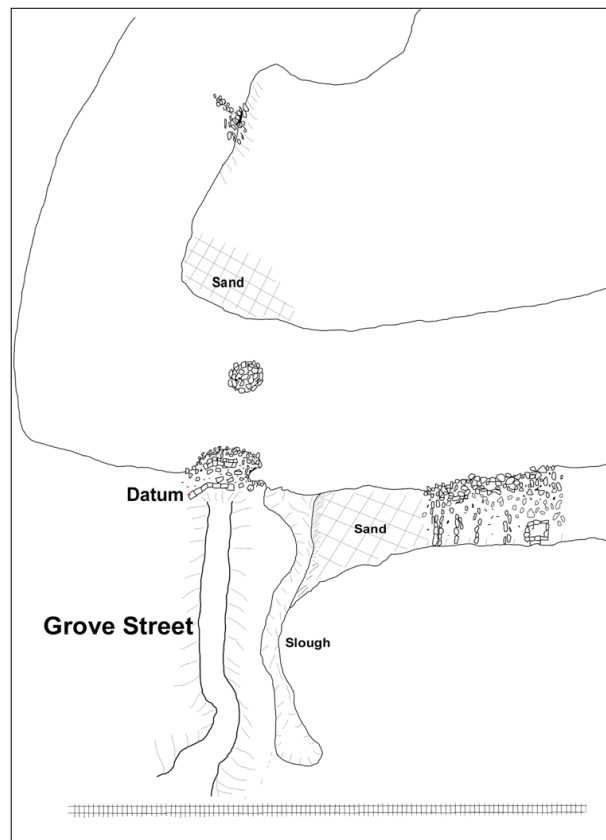


The square gangplank support near the east edge of the Levee. This structure may be what the other four courses looked like originally.



Looking east with a panoramic view in of the bridge piers, abutment, and road remains in early December 2011.

This drawing was created using data MHM collected during terrestrial surveys of the site in December 2011. Unfortunately the slough marked to the right of old Grove Street has washed away part of the Levee, but a significant portion of it survives to the east. No evidence of the north bridge abutment could be found; it is either destroyed or deeply buried by sands that have been shifting for decades.



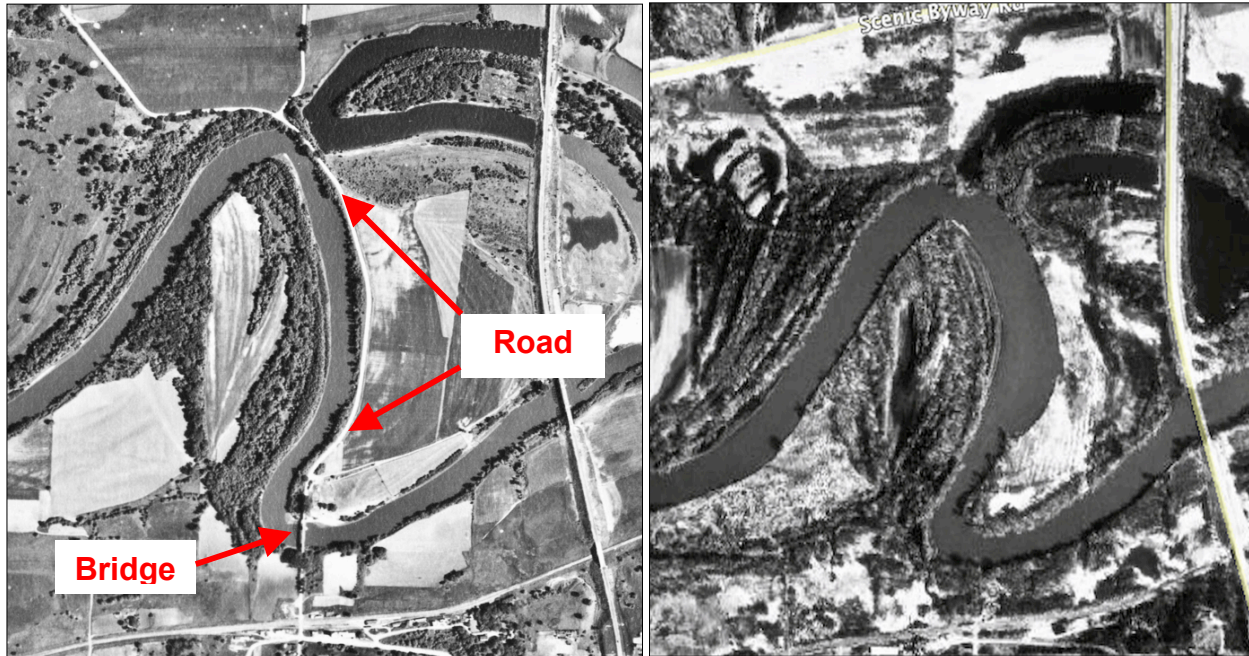
The destruction of the road running north of the bridge remains was predicted by the US Army Corps of Engineers in 1880, only a few months after the bridge was opened. In late October a Corps assistant examined the road in Sibley County as reported “in 1879 the citizens built a wagon bridge, with a draw, across the river, at a cost of about \$20,000. The bridge is useful, probably as much to the farmers of the vicinity as to the citizens of Belle Plain[e]. The road leading from the north end of the bridge passes through a narrow neck of land...where the least width between banks is about 200 feet. This neck, Assistant Terry reports, is cutting away, on the right bank, at the rate of about 5 feet a year, the erosion having progressed to within about 30 feet of the wagon road. The fear upon the part of those interested in the preservation of this approach to the bridge seems to be that the stream may break through the neck of land and leave the bridge abutting upon an island” (Allen 1882, 1831-1832).

The Corps again examined the area in 1883 and the destruction of this area of the Minnesota River had continued as predicted – an erosion of five feet per year. Due to the dearth of steamboats navigating the river in the 1880s, it was determined that the \$12,000 required to stabilize the riverbank was not a good expenditure of funds by the Federal Government. It was noted, however, that “there is also no reason why boats, if navigation should be resumed, could not pass through the new channel with equal facility as through the present channel. It would, however, in time render the only favorable steamboat landing in the immediate vicinity of Belle Plaine unapproachable except at high water, and would destroy the road that passes over the neck...to the iron drawbridge that connects Belle Plaine with the east side of the river. This last appears to be the only s[r]eason existing at the present time for the proposed protection” (Davenport 1885, 1638).

In August 1888 Congress appropriated \$10,000 to make improvements to the Minnesota River; included in this fund were moneys to stabilize the river north of the Belle Plaine Swing Bridge. However, a survey of the area in September 1888 determined that the funds designated for the project were inadequate to solve the shifting channel problem and the work was deferred pending additional Congressional consideration. The Minnesota Congress passed a joint resolution on 31 January 1893 requesting \$25,000 from the US Congress stressing “the important of continuing the work of the improvement of the Minnesota river in the interest of cheap transportation is a matter of natural [national] interest, and whereas, there is a large amount of travel and intercourse between the citizens of the United States carried on across the said ‘free-toll iron bridge,’ and whereas the highway leading to said bridge on the north side is in imminent danger of being cut in twain by reason of the Minnesota river changing its present bed or channel and running north of said bridge, thereby rendering said bridge useless to the public at large.” An appropriation was authorized to improve sections of the Minnesota River between September and November, 1893, through the River and Harbor Act of 1892, but the Belle Plaine work was omitted from this plan (Minnesota Secretary of State 1893, 415; US War Department 1894, 268).

Subsequently, in 1907 the State of Minnesota set the sum of \$500 “to aid in constructing and repairing the road known as the Belle Plaine bridge road in the Borough of Belle Plaine”. However, the road under threat is in Sibley County so this appropriation is seemingly designated to maintain old Grove Street. Although, funds were allocated to

Scott County, “of which \$1,000 is to be used to aid in constructing and repairing a road known as the Belle Plaine bridge road, to be expended under the supervision of the Borough council of Belle Plaine” to be available during the fiscal year ending 31 July 1910. Further, another \$1,000 was promised for the fiscal year ending 31 July 1911 (Minnesota Secretary of State 1907, 571-572; 1909, 682-683).



In the 1940 image to the left, the Belle Plaine Swing Bridge is still intact, as is the road along the river bank in Sibley County. By 1991 the road is completely obliterated by the shifting river (John R. Borchert Map Library).

MHM submitted a Minnesota archaeological site form for the Belle Plaine Levee and Swing Bridge Remains site alone, and not any other site discovered during the Minnesota River Survey 1 Project, due to its level of preservation, defined boundaries, and its function as a destination for steamboats, barges, and passengers to link with Sibley County, Belle Plaine, and the railroad.

Site M. *Ferry, Faxon, Sibley County to Scott County*

Walker's Landing – the original name of Faxon – was surveyed in April 1856 although claims had been made in 1852. The town had several stores, a warehouse, blacksmith shop, steam sawmill, saloons, and a post office. A ferry crossing was established early and was acquired by Mr. Ferris for operation, a job he held until about 1862. In 1871 Faxon declined in importance when a public highway was built to Blakely and the ferry was acquired by Blakely business owners (Deis 1995, 622; Neill and Bryant 1882, 433).



The Faxon Ferry crossing was located where the road ended at the river (Andreas 1874).

Site N. Ferry, Blakely, Scott County to Sibley County

Although the township of Blakely was established in 1874 out of a section of Belle Plaine Township, settlers laid claim to the land that would become Blakely in 1853. As mentioned above, the construction of a highway to Blakely in 1871 facilitated the purchase of the Faxon Ferry by Blakely business interests. It was noted that over the working life of the ferry, six ferries pontoon bridges were used to accommodate the passengers and cargo that required a transfer across the Minnesota River. A ferry user reminisced about the flatboat's mechanism that had "an anchor point on each side of the river where a cable was attached. The cable was wound around a large spool device fastened to the ferryboat deck. The operator worked a long lever on the spool which shortened the cable in the direction of travel while playing it out at the stern." The Blakely Ferry a long working life since it was not replaced with a bridge until 1925 (Deis 1995, 622; Neill and Bryant 1882, 333).



The Blakely Ferry crossing, road, and railroad are marked on this 1874 map (Andreas 1874).

The Blakely Ferry in action around 1917 (Postcard).



The Blakely Ferry awaiting more passengers or cargo before crossing the Minnesota River (Albrcht 1977, 488).



Site 13. *Memorial Bridge Remains, Blakely, Scott County to Sibley County*

The Memorial Bridge opened in May 1925 at the location of the ferry crossing. It was an iron truss bridge dedicated to Sibley and Scott County veterans who served their country during World War I. This bridge served the two counties for 80 years. However, after decades of corrosion from repeated high water conditions and flooding, it was replaced by a higher concrete bridge in 2005 (Deis 1995, 622; Weeks 2008a). One of the rectangular piers of the bridge survives in the river channel and is prominent during low water.

The Blakely Memorial Bridge as seen from the air in 1964 (John R. Borchert Map Library).



A large snag is caught up on the Blakely Memorial Bridge Remains in February 2012.



A view of the Memorial Bridge pier from the 2005 bridge in February 2012. Floating snags such as the tree caught on the pier remains are a constraint threat to maritime archaeological sites in the river.



This image was taken from the south riverbank and allows a view construction of the bridge pier remains.

Site O. *Doheny's Landing, Jessenland, Sibley County*

In July 1852 Thomas Doheny made a claim in Jessenland and constructed a steamboat dock to attract visitors and settlers alike. Called Doheny's Landing, Mr. Doheny constructed a store and warehouse on his riverfront in November 1854 and also farmed a parcel of land. Like Faxon and the Faxon Ferry, Doheny's store was a victim of the expansion of businesses in Blakely due to the extension of the railroad and it closed sometime after 1867. Doheny moved his warehouse away from the riverfront and after some renovation, it was used as a house (Deis 1995, 591-593, 607, 617-618).



Doheny's Landing upriver from Faxon (Andreas 1874).

Site P. Ferry, Henderson, Sibley County to Le Sueur County

Henderson was founded in 1852 and two years later B. G. Leshar arrived there to operate the Valley Hotel for two years. Thereafter he ran a Minnesota River ferry connecting with the road leading into East Henderson. The ferry service operated under Leshar for five years and he then rented the business to another businessman for another five years. In the 1870s the ferry landing was moved to the “foot of Main Street”, the location of the future iron swing bridge that replaced the ferry service in 1877. At that time John Hepp operated the ferry and in 1931 he reminisced about the ferryboat’s sinking during the construction of the bridge. The newspaper at the time quipped, “Haney’s ferry boat got mad about the new bridge and went down to see what was up” (Deis 1995, 108; *Henderson Independent* 1931; Neill and Bryant 1882, 413, 422; *Sibley County Independent* 1877d).



The Henderson Ferry location (Andreas 1874).

The Henderson Ferry in 1854 (MS5.9HNp4, Minnesota Historical Society).



Site Q. Bridge, Henderson, Sibley County to Le Sueur County

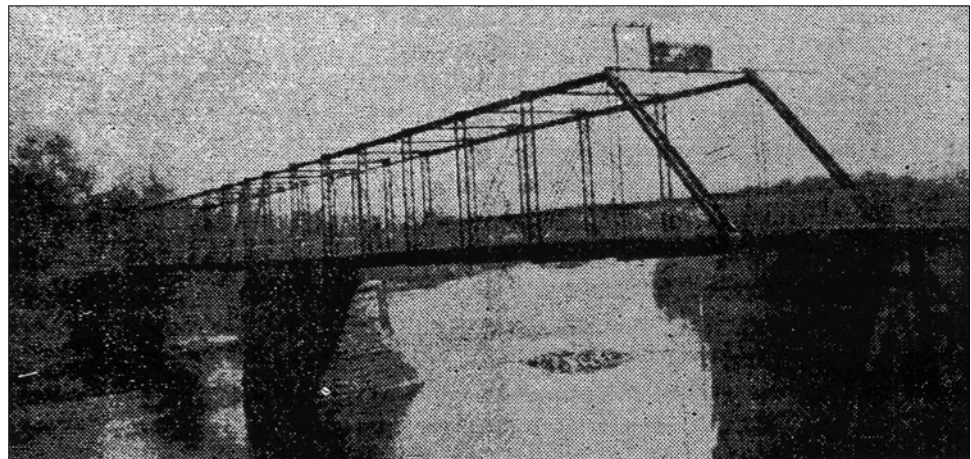
The Borough and Township of Henderson financed and ordered the construction of an iron swing bridge over the Minnesota River during 1876-1877 at a cost of \$17,000. By 10 February 1877 it was reported “the mason work on the new bridge is completed and the approaches are being built for the purpose of putting up the iron work. A few car-loads of iron have already arrived.” Contractors set to assembling the iron structure on one of the approaches to the river with the intention of sliding it into place upon its completion and by the end of March it was reported “the bridge is fast being completed.” However, it was interesting to note “the bridge builders have been at work under the delusion that the Minnesota river remains frozen up the year around. On Thursday the

ice moved out and as a natural consequence some of the false work also went down. About four ton of iron went to the bottom of the river.” By mid-April the bridge’s iron superstructure extended across the river and the first steamboat to run under it, the *Gopher*, lowered her smokestack to accomplish the task. A week later *Gopher* arrived back in Henderson from upriver and by this time, the bridge was able to open to let her pass easily. The ironwork on the bridge was entirely complete by 12 May 1877 but the project’s engineer had reservations about some aspects of the bridge’s construction and these concerns had not been resolved by 9 June. At some point during the summer the bridge’s quality was confirmed and it opened for wagon and pedestrian traffic. Once completed, the draw was 290 feet long with wooden approaches on both sides of the Minnesota River (*Henderson Independent* 1931; Neill and Bryant 1882, 413; *Sibley County Independent* 1877a-c, e-h).

The Henderson Swing Bridge (MS5.9HNR12, A. C. Blasing, Minnesota Historical Society).



The Henderson Swing Bridge during low water (*Henderson Independent* 1931).



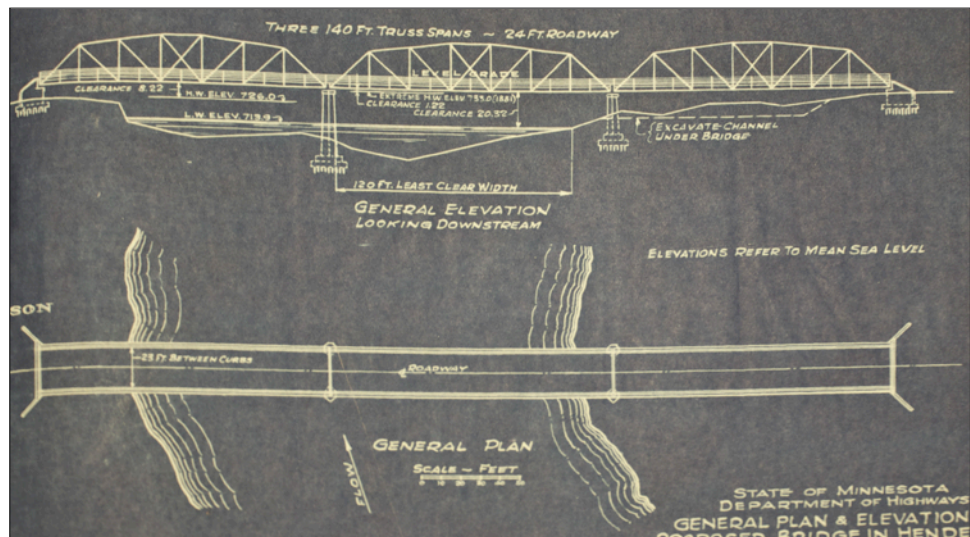
The Henderson Swing Bridge was condemned in the late 1920s and the citizens of Henderson petitioned the State of Minnesota for a permit to construct a new bridge; the permit was awarded on 29 September 1930. Henderson contracted with the firm of Nolan Brothers and Erler of Minneapolis for the job at the agreed upon price of \$48,800 on 12 November 1930. Work on the new bridge began within two weeks and by 13 March 1931, the abutments and piers were completed. The steel superstructure

assembly began on 18 March and was completed on 2 July 1931. Once finished, the new bridge measured 420 feet long and was designed with “three 140 foot high truss steel spans with sub-structure of reinforced concrete and superstructure of structural steel and reinforced concrete slab.” This new fixed span steel bridge served Henderson until 1987, when it was replaced by a steel girder bridge (*Henderson Independent* 1931 31 July; USACE 1930; Weeks 2008d).

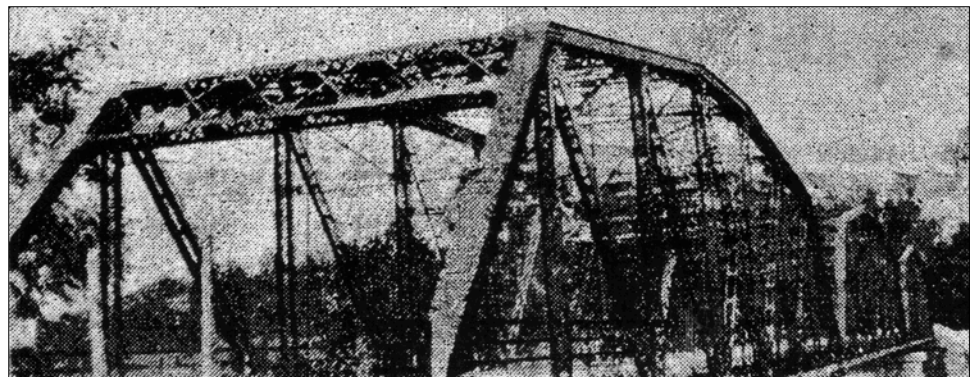
An engineer's plan of the location of the 1931 bridge in relation to the original 1877 bridge across the Minnesota River in Henderson (USACE 1930).



Engineer's plans of the 1931 Henderson Bridge (USACE 1930).



An image of the 1931 Henderson Bridge at its completion (*Henderson Independent* 1931).



The 1931 Henderson Bridge casts a good shadow on the river in this 1951 aerial image (John R. Borchert Map Library).



The Sonar Anomalies

MHM noted 19 anomalies during the MRS-1 Project. Of these, only five appear to be possible human-made objects that may warrant further investigation. MHM will investigate these anomalies by SCUBA in the near future if all goes as planned.

Anomaly 1

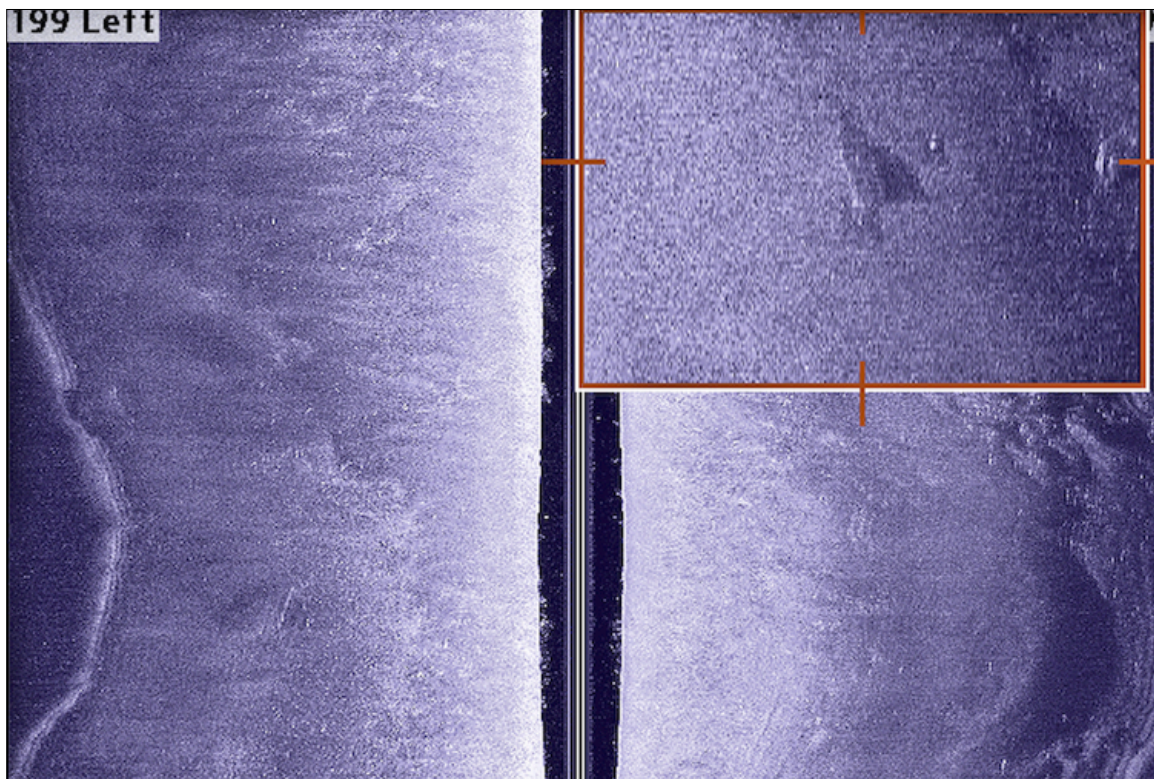
Recorded: 11/10/2011

Identification: Boat Shaped Feature

Size: Approximately 31 Feet Long

Location: North side of the river, southwest side of Pike Island, Fort Snelling State Park

Analysis: Possible wreck, it may be a small boat; the river channel in this area is kept clear of debris regularly but the anomaly is close to the riverbank so it may have been missed by dredges



Anomaly 2

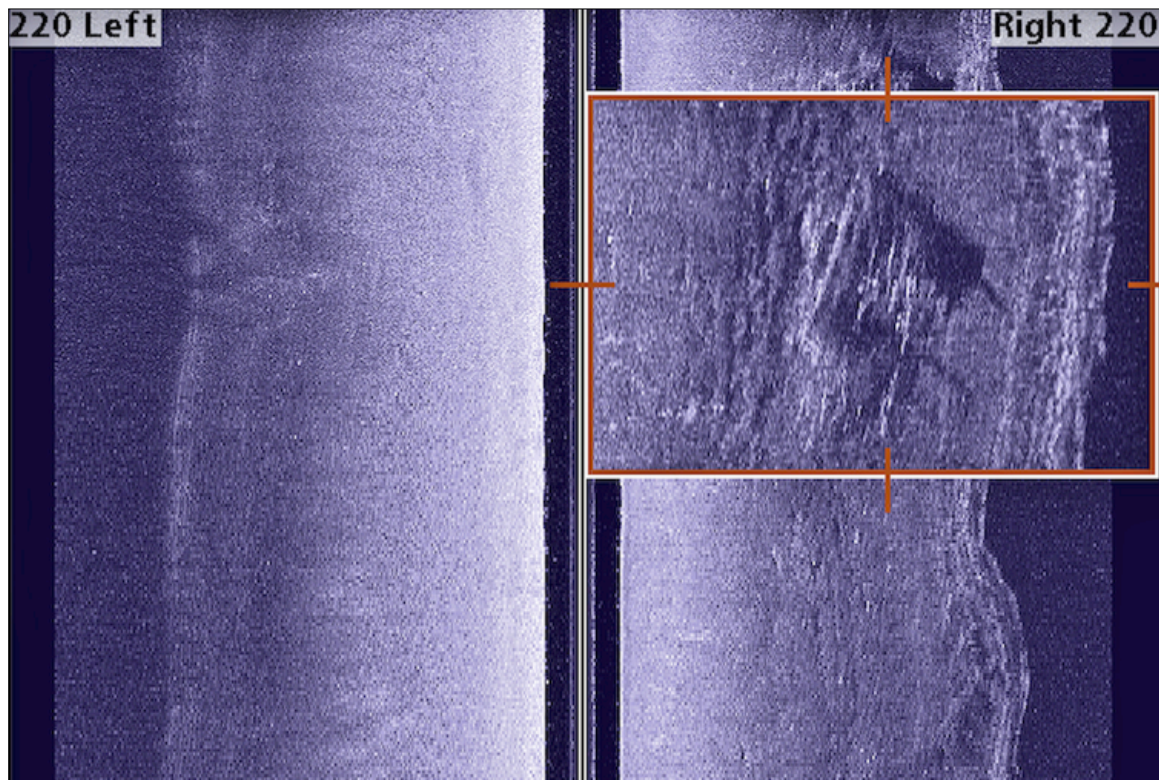
Recorded: 11/10/2011

Identification: Rectangular Feature

Size: Approximately 22 Feet Long

Location: Near Long Meadow Lake, northwest side of the river, Fort Snelling State Park

Analysis: This anomaly could be part of some dismantled infrastructure; note the thin protrusions casting shadows to the right of the anomaly.



Anomaly 3

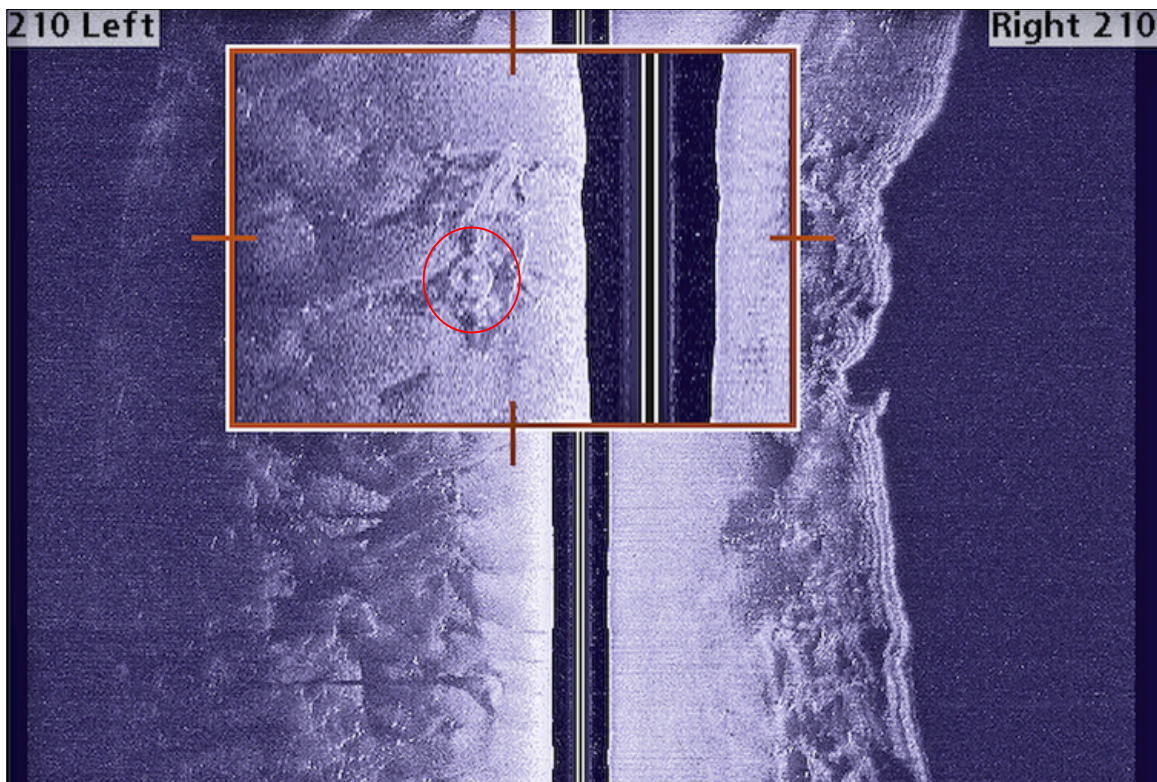
Recorded: 11/11/2011

Identification: Round Feature

Size: Approximately 8.5 Feet Diameter

Location: Near Blue Lake, south side of the river, Wilke Unit, National Wildlife Refuge and Recreation Area

Analysis: This anomaly could be part of some dismantled infrastructure; note the large snag caught on the object.



Anomaly 4

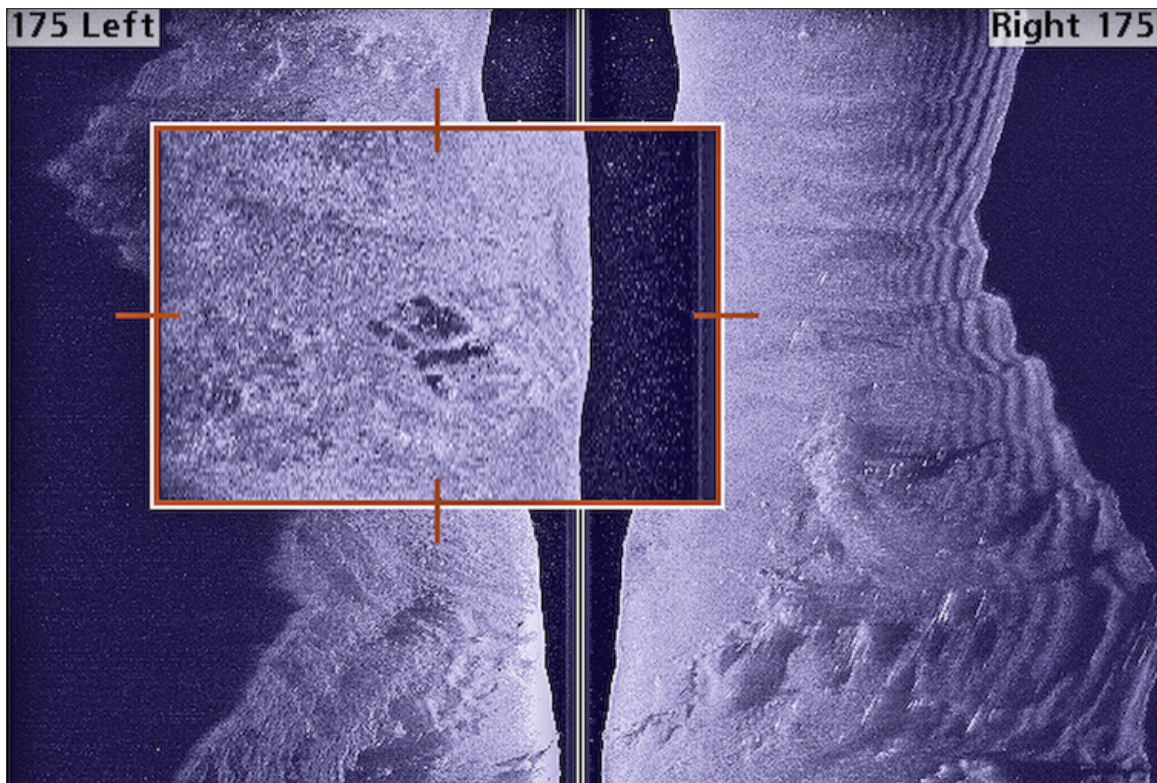
Recorded: 11/11/2011

Identification: Square Feature

Size: Approximately 20 Feet Long

Location: East side of the river, Shakopee, Scott County

Analysis: This anomaly appears to be an unknown human-made object.



Anomaly 5

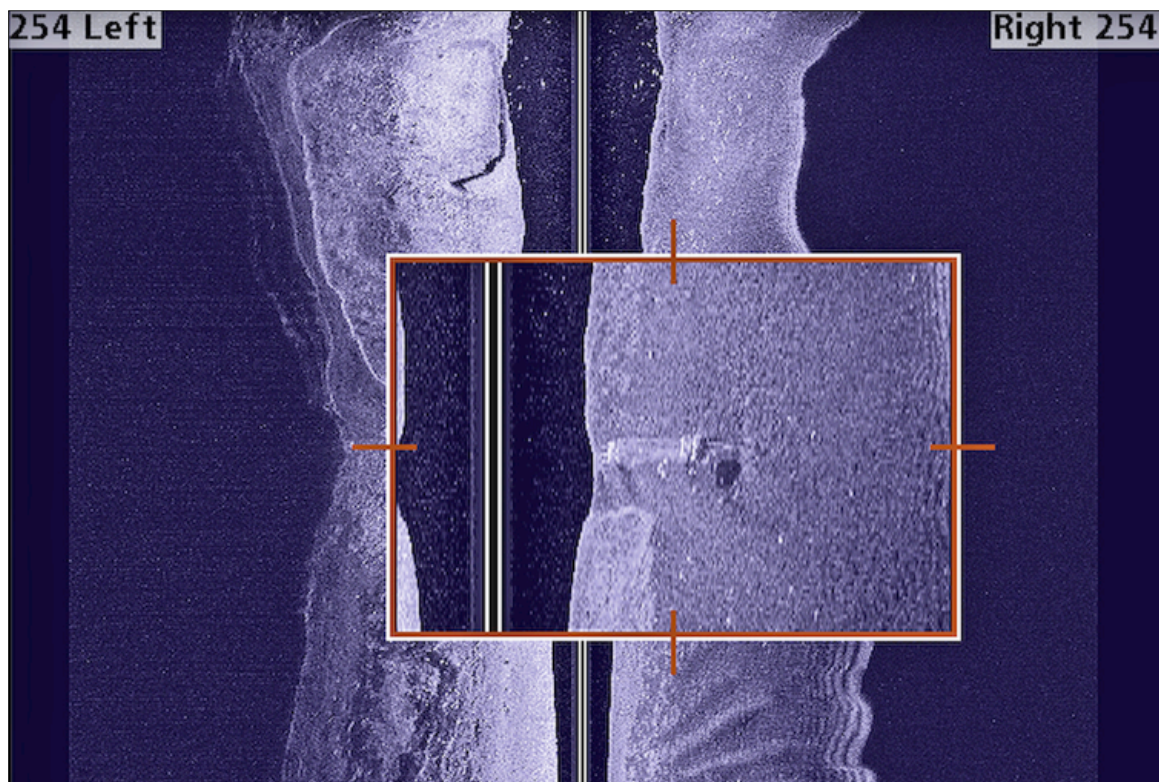
Recorded: 11/11/2011

Identification: Rectangular Feature

Size: Approximately 33 Feet Long

Location: West side of the river, near the Chaska Railroad Swing Bridge Remains, Carver County

Analysis: The rectangular shape and length of this anomaly is promising, suggesting the shape and size of a ferry, cargo flat, or small barge. However, this anomaly may be part of the bridge, left over from its dismantling.

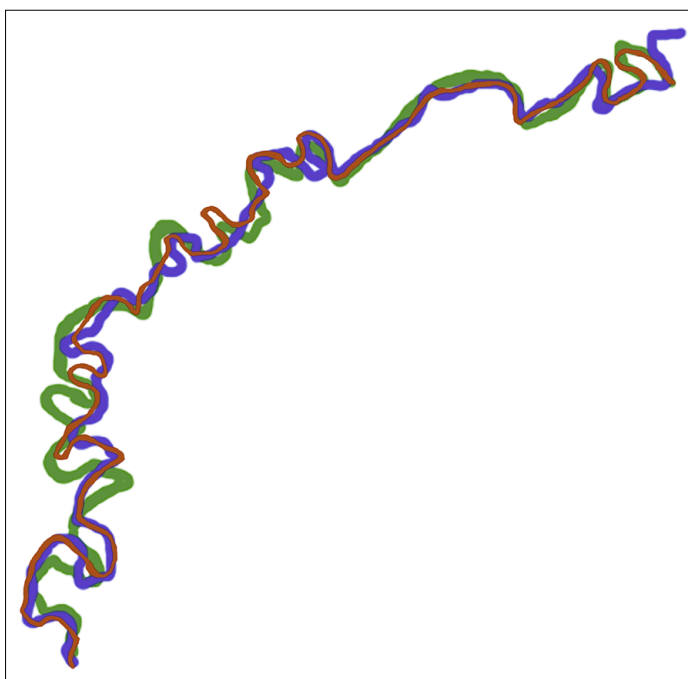


Analysis

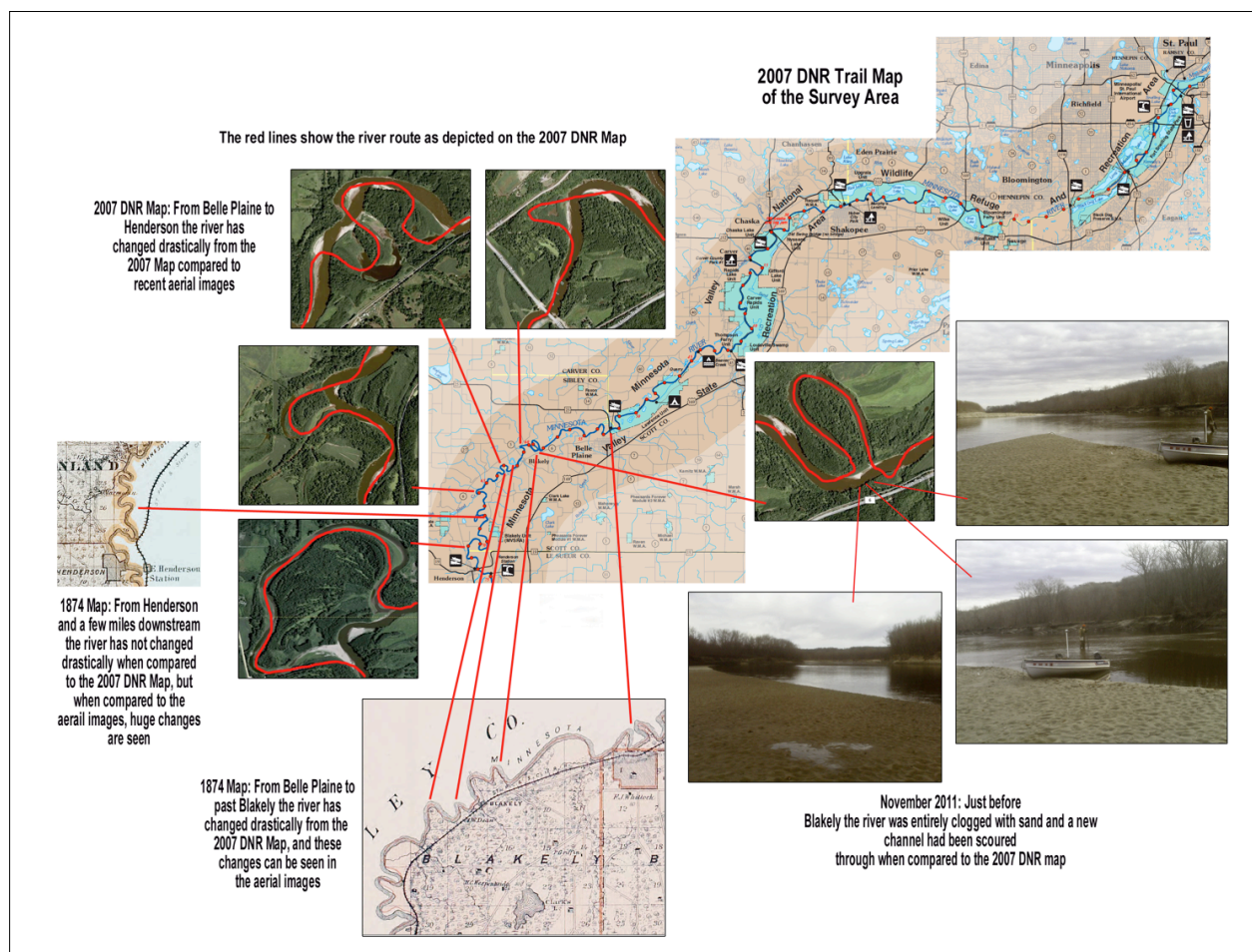
The maritime history of the Minnesota River Valley is a rich and fascinating one, characterized by the flexibility and entrepreneurial nature of the steamboat, barge, and ferry operators of the latter 19th Century into the early 20th Century. Navigation of the Minnesota River was entirely dependent on unpredictable water levels, be they high or low, the presence or absence of dangerous snags, and the formation of dynamic sand bars. Ice floes, rushing high water during Spring snow melt and after torrential summer rains, along with tumbling trees eroded out of riverbanks are all factors that contributed to changing river channels and moving sand bars that impeded navigation. While common sense would dictate that these factors are obvious ones to consider while operating a watercraft on a winding river, the problem was compounded by the rapidly changing nature of these conditions – the most important of which is the sandy river bottom and riverbanks. With these ever-changing conditions in mind, it is remarkable that the maritime history of the Minnesota River was as lively as it was, accommodating a great number of watercraft to this day from Savage to the Mississippi River.

Currently the head of navigation for the Minnesota River is Savage, a point to which USACE maintains a nine-foot deep channel with a 100-foot width from the mouth of the river. The Corps monitors this section of the river regularly, removing snags and dredging when necessary. The river was maintained to a four-foot depth to Shakopee until 1970 (USACE 2010), but in the last 42 years the river from just east of Shakopee and upriver has become snag-ridden and immense sand bars have formed. From this point, roughly where the Peavey Company barge site is found, navigating the river – even in a small boat – is an adventure. MHM encountered the products of decades of flooding, decades of shifting channels, decades of sand bar shift, and decades of snag formations. Further, the number of river cut-offs and oxbows that have developed from this incredibly dynamic riverine environment had prohibited access to many sections of the river where steamboats and barges traveled during the 19th Century.

This graphic is a comparison between the 1855 survey map – RED, the 1874 Minnesota River route – GREEN, and the 2007 Department of Natural Resources Trail Map – BLUE, between Belle Plaine and Henderson. The DNR Map river route coincides with USGS topographical maps of 1981. The changes in the river route over the decades is apparent.



During the survey, MHM navigated around sand bars and through snags that often stretched nearly across the entire river channel. At river mile 58, east of Blakely, 75% of the river channel was blocked by an immense sand bar and the remaining 25% was about 6 inches deep. Low water attributed to these conditions, but even during normal water levels navigation through this section of the river would be difficult. As the images below indicate, the river between Blakely and Henderson is comprised of a series of river cut-offs and because of these changes in the channel much of the river that was navigable in the late 19th and early 20th Centuries are no longer accessible by boat. Further, the areas that are accessible are clogged with sand bars that would cover any nautical archaeological resources that may lie in those sections of the river. MHM was forced to discontinue the sonar portion of the survey at river mile 58 because of these circumstances.



This graphic combines a variety of information in one place. Firstly, the 1874 maps and recent aerial images of the Minnesota River between Belle Plaine and Henderson are referenced to the 2007 DNR Map. Further, photographs taken during the sonar survey in November 2007 are referenced to the sand bar-clogged river just upstream from Blakely.

MHM walked the large 2.5-mile mushroom-shaped river cut-off north of Henderson shown above. The 1855 and 2007 maps of this area are nearly identical, showing the cut-off accessible and completely open. The 1874 map indicates a much smaller river route that lay entirely within the 1855 and 2007 routes. Initially MHM surmised that the 1874 map was simply poorly drawn but the inner – now completely dry – channel was

located during a terrestrial survey. Both of the channels of this large cut-off, and others like them, are sections of the old river where dry nautical sites may be located, buried under the sand.

An aerial image of the 'mushroom-shaped' cut-off just north of Henderson. The dotted lines are county boundaries. The next images coincide with the numbers on this image (Goodgle Earth).



1. A section of the outer channel in February 2012. Note the small abandoned boat to the left.





2. Portions of the outer cut-off are dry while others have a few inches of water in them, as would be expected. MHM's car is to the right of this image, parked on Highway 6 just north of Henderson.

3. This image is a portion of the 1874 cut-off and is clearly a dry river bed. This and similar dry beds can contain dry nautical or maritime archaeological sites.



4. A snag in the 1874 channel. It is not surprising that *Julia* sank after hitting a snag near Mankato.



5. Another snag in the form of a complete tree. Snags this large are moved by the river current into this position, with the heavy root ball pointed upriver and the lighter branches pointing downriver.



6. This large sand bar represents the confluence of the 1855, 1874, and 2007 cut-off channels and the current Minnesota River channel north of Henderson. The current channel, seen to the right, developed in the last few decades and does not represent an area where nautical and maritime archaeological sites would be found.

Regardless of the natural restrictions and circumstances described above, the MRS-1 Project located 13 maritime sites, 11 of which could qualify as archaeological sites because of their ages. One of the exceptions is Site 8, the Peavey Company Barge Pier, and it will be old enough in 2013. The other exception is Site 3, the concrete support in Fort Snelling State Park, since its age cannot be determined with current evidence. However, after discussions with the Office of the State Archaeologist, it was decided to only apply for archaeological site numbers for the Belle Plaine Levee and Swing Bridge Remains. The rationale behind this decision primarily rests upon the fact that the levee and bridge represent a destination for the local ferry, steamboats, barges, wagons, cargoes to and from the railroad line, and passengers – from the boats, railroad cars, and from across the river in Sibley County. The archaeological site represents a discrete place where activities took place, not just a small section of a larger whole like part of a railroad line or road that sites 1, 2, 4, 7, 9, 10, and 13

represent. Further, the site is truly archaeological, unlike the active Port Cargill (Site 5) where barges currently transport bulk cargo throughout the shipping season. A strong argument can be made for categorizing Site 11 – the Landing and Portaging Site and the Gehl-Mittelsted Farm – as an archaeological site. However, the combination of historic buildings and a maritime archaeological site will require a great deal of research and investigation that is beyond the scope of this survey. Lastly, Site 6 is merely a depression in the riverbank and with the dynamic nature of the Minnesota River, it may not be much longer in existence. Fortunately, Site 12 in Belle Plaine has been stabilized by rip rap that has saved the majority of the Levee from destruction during the last 110 or more years.

Recommendations

Maritime Heritage Minnesota has developed a variety of specific suggestions for future maritime historical and nautical archaeological work in the Minnesota River Valley. They are listed below, starting at the mouth of the Minnesota River and heading upriver.

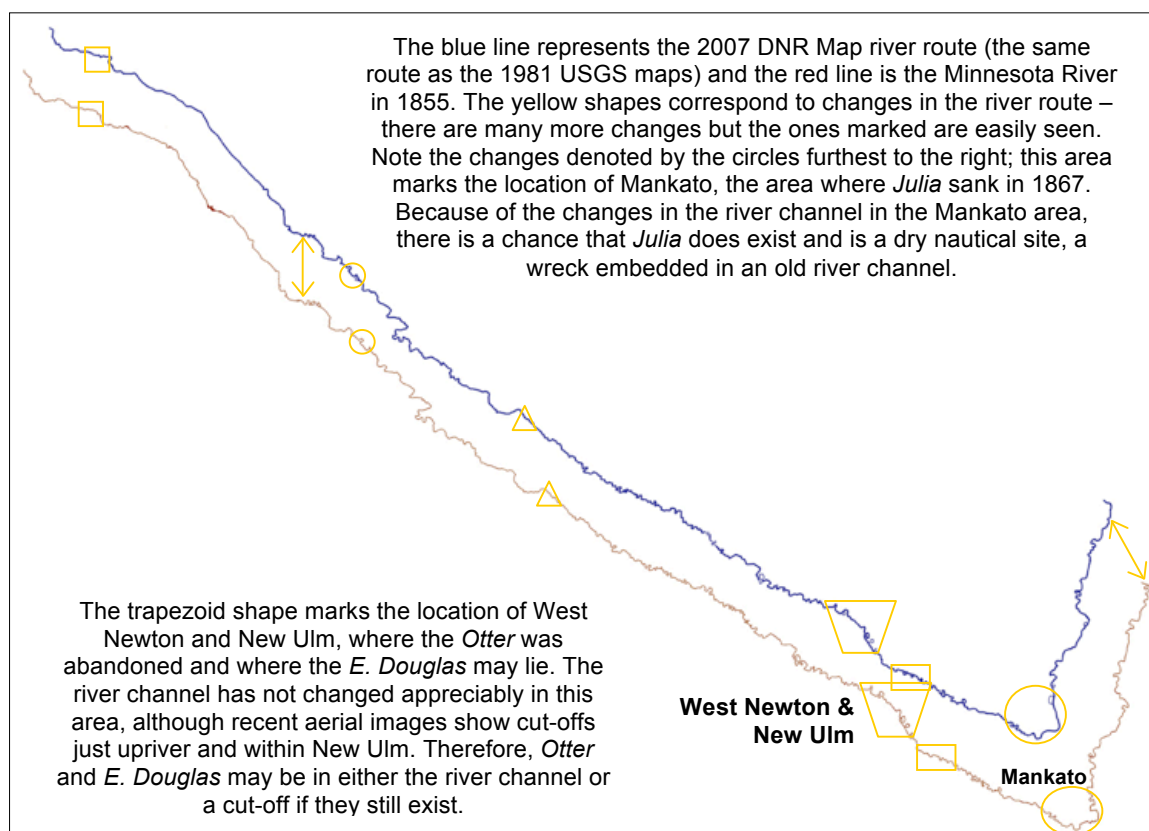
- **Anomaly 1.** MHM would like to pursue further study of this anomaly through a SCUBA investigation to determine if the object is a wrecked boat like its shape suggests. If the anomaly is a wreck and her age can be ascertained, if she is old enough MHM will complete a State of Minnesota archaeological site form and plan for her documentation.
- **Site 1. Railroad Trestle Remains, Fort Snelling State Park.** MHM contends this site is one of the most significant railroad infrastructure sites in the State. The archaeological remains of this railway line represent the first railroad constructed into Minneapolis and the documentation of the pilings along the current river channel would be a worthwhile project. Further, MHM recommends that the portion of Picnic Island where the railroad bed was laid should be investigated to determine if any of the line has survived. This project could be used during Minnesota's Archaeology Week to educate our citizens about the history of the area and would be the type of excavation where children could experience what doing terrestrial archaeology is like – in a safe environment where fragile artifacts would not be damaged or destroyed.
- **Site 2. Temporary Mendota Bridge Construction Railway and Scaffolding Remains, Fort Snelling State Park.** Like Site 1, the pilings that represent the temporary railway could be easily documented during low water conditions. However, because of their proximity to the river, MHM does not suggest this site be used for any public education programs because of safety concerns.
- **Anomaly 2.** While not a priority, MHM would determine the nature of this anomaly because of its distinctive shape that suggests a human-made object.
- **Site 5. Port Cargill Dry Dock/Launch Ways and Barge Piers, Savage.** This interesting maritime site represents the working life of Port Cargill, where completed vessels would be launched into the river for a trip to the Gulf of Mexico or held in place in a dry dock situation. Documentation of the dry docks/launch ways at Port Cargill is recommended, but it must be noted that the entire port is one large maritime archaeological site with various dates of occupation and any such endeavor would have to be undertaken with a great deal of planning.
- **Anomaly 3.** While not a priority, MHM would determine the nature of this anomaly because of its distinctive shape that suggests a human-made object.
- **Site 8. Peavey Company Barge Pier Remains, Shakopee.** As stated earlier, the Peavey Company Barge Pier Remains will not be old enough to be considered an archaeological site until 2013. After that date this barge pier would

be an interesting site to document before it deteriorates any further. However, like Site 5, the large grain elevator and woodland associated with the pier would also be part of the archaeological site and again, documenting such a site required a great deal of planning and time.

- **Anomaly 4.** While not a priority, MHM would determine the nature of this anomaly because of its distinctive shape that suggests a human-made object.
- **Anomaly 5.** MHM would like to pursue further study of this anomaly through a SCUBA investigation to determine if the object is a ferry, cargo flat, small barge, part of the dismantled bridge, or none of these things. If it is concluded that Anomaly 5 is a watercraft of one of the types suggested here and she is dated to the late 19th or early 20th Century, she would be the first such wreck site identified in a Minnesota river.
- **Sencerbox Steamboat.** Although no obvious anomaly was located during the survey that may be the Sencerbox Steamboat, MHM plans to monitor on the section of river between Chaska and Carver for the re-appearance of this wreck.
- **Site 11. Landing and Portaging Site, Gehl-Mittelsted Farm, San Francisco Township.** MHM suggests that this site be investigated in the future, not just by maritime historians and nautical archaeologist, but by structural historical preservationists as well. The watercraft landing at the bottom of the bluff represents only one of two that have largely survived on the Minnesota River. The section of this site that lies below the bluff falls under the jurisdiction of the State of Minnesota; the house, outhouse, and barn remains are located on land owned by the Minnesota Valley National Wildlife Refuge and is part of the Rapids Lake Unit. These governmental agencies, at the State and Federal levels, have different guidelines and priorities, therefore any project to document and preserve all or part of the river landing must also concern the structures. A project of this size would require planning, time, and a great deal of money.
- **Site 12. Belle Plaine Levee and Swing Bridge Remains, Belle Plaine, Scott County to Sibley County, Minnesota Archaeological Sites 21-SC0098, 21-SB0027.** MHM's preliminary documentation of this site and its recognition by the Office of the State Archaeologist is a good start for this significant maritime archaeological site. Future work here could include a search for the north side bridge abutment and any remains of the road leading north. This work would be within the site boundaries as determined by MHM. Preservation of the site could include shoring up the riverbank where the slough cuts through the Levee, preventing further damage when water rushes to the river.
- **Site 13. Memorial Bridge Remains, Blakely, Scott County to Sibley County.** MHM is curious to discover if a bridge pier survives toward the south side of the river in line with the pier near the north riverbank. Snorkeling during low water would probably answer this question.

- **Julia.** MHM advocates an attempt to locate the wreck of the *Julia* near Mankato. MHM had received a lead on a dry nautical site near Mankato, where a wreck may be located in a cut-off or oxbow. This wreck may be *Julia* or another vessel and this lead will be pursued in the near future.
- **Otter.** MHM will pursue, at some point in the future, a search for the steamboat wreck *Otter* near West Newton and New Ulm. Locating this wreck would be of particular interest to MHM, even beyond the *Julia*, because she would represent the only known purpose-built Minnesota River steamer built locally, in Henderson.
- **E. Douglas.** Locating the *E. Douglas* wreck would also be of great interest to MHM since she was also a Minnesota-constructed steamboat, although not built purposefully for the Minnesota River. She may also lie near West Newton.
- **Freighter.** MHM does not plan to attempt to locate the *Freighter* wreck unless more information about her probable survival is found.

If MHM attempts to locate *Julia*, *Otter*, *E. Douglas*, or *Freighter*, side and down imaging sonar will not be sufficient to locate these nautical archaeological sites due to the nature of the Minnesota River. Sub-bottom profiling would be required for any river channel search and ground-penetrating radar might be needed when searching for dry nautical sites. Also, simple terrestrial reconnaissance and shovel testing would be employed, combined with informant interviews.



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